HP Mini 1000 NetBook
Maintenance and Service Guide

First Edition: October 2008

Document Part Number: 496744-001

Safety warning notice

⚠ **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

Table of contents

1 Product description

Category	Description
Product Name	HP Mini 1000 NetBook
Processor	Intel® Atom™ N270 1.6-GHz processor, 512-KB L2 cache, 533-MHz front-side bus (FSB)
Chipset	Northbridge: 945GSE; 533-MHz bus speed
	Southbridge: ICH7M
Graphics	Intel Universal Memory Architecture (UMA) graphics subsystem
Panels	All display assemblies include webcam, 1 microphone, and 2 WLAN antenna transceivers/cables
	Wide aspect 16:10 ratio panels
	8.9-inch WSVGA BrightView (1024 x 600) LED
	10.2-inch WSVGA AntiGlare (1024 x 600) LED
Memory	One customer-accessible/upgradable memory module slot
	Supports up to 1 GB of system memory
	PC2-4200, 533-MHz, DDR2
	Supports the following configurations: • 512-MB total system memory (512 × 1) • 1024-MB total system memory (1024 × 1)
Mass storage devices	Supports all 4.57-cm (1.8-inch) parallel ATA (PATA) hard drives Configuration: 60-GB, 4200-rpm
	Solid-state drive (SSD) based on multi-level cell (MLC) technology (select models only) Configurations: • 8-GB • 16-GB Models with solid-state drives also support the HP Mini Mobile Drive
Optical drive	All models support external USB optical drives
Diskette drive	Supports external USB diskette drive only
Audio	High-definition (HD) audio - AD1984
	Integrated speakers (2)

Category	Description
	Fixed integrated microphone
Webcam	Fixed integrated VGA webcam, 640 x 480 resolution, up to 30 frames per second
Modem	Supports external USB modem only
Ethernet	Integrated 10/100 network interface card (NIC)
Wireless	Integrated WLAN by way of Broadcom BCM4312 802.11b/g WLAN module
	Integrated personal area network (PAN) by way of Bluetooth® module
	2 WLAN antennae built into display assembly
External media cards	SD Card Reader supporting MultiMediaCard (MMC) and Secure Digital (SD) Memory Card
	HP Mobile Drive (only on models with solid-state drives)
Internal media cards	Two mini-card slots
	Full-size mini-card slot
	Half-size card slot
Ports	Audio-in (stereo microphone)
	Audio-out (stereo headphone)
	RJ-45 (Ethernet, includes link and activity lights)
	USB (2)
	VGA (Dsub 15-pin) supporting 1600 × 1200 external resolution at 75 Hz and WUXGA at 60 Hz (hot plug/unplug with auto-detect)
	3-pin AC power
Docking	Expansion port
	Signals passed through expansion port: • USB 2.0 • Headphone-out/stereo-out and stereo microphone-in • VGA-out • Power-in • Power (up to 50 W) **NOTE:** Docking device will support RJ-45 through USB (no pass-through support on the expansion port).
Keyboard/pointing device	92% keyboard
	TouchPad, with 2 TouchPad buttons and two-way scrolling (taps enabled as default)
Power requirements	30-W UMA AC adapter (non-smart) with localized cable plug support
	AC adapter connector on cable
	3-cell lithium-polymer battery (2.4-Ah, 26-Wh), 3-hour target life
Security	Supports HP security lock
Operating system	**Preinstalled:**

Category	Description
	Windows® XP Home SP3, ultra low-cost personal computer (ULCPC) edition
	Restore media:
	Backup software provided by operating system CD and recovery DVD
Serviceability	**End-user replaceable parts:**
	AC adapter
	Battery (system)
	Memory module

2 External component identification

Top components

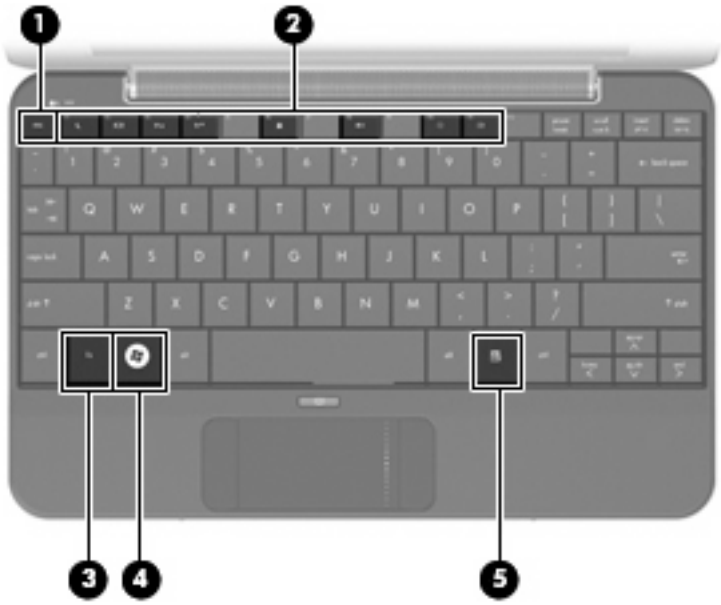
Display

Item	Component	Function
(1)	Internal display switch	Turns off the display if the display is closed while the power is on.
(2)	Speakers (2)	Produce sound.
(3)	WLAN antennae (2) *	Send and receive wireless signals to communicate with wireless local-area networks (WLANs).
(4)	Internal microphone	Records and captures sound.
(5)	Webcam	Captures still photographs and videos. **NOTE:** To capture videos, you will need to install additional webcam software.

* The antennae are not visible from the outside of the device. For optimal transmission, keep the areas immediately around the antennae free from obstructions.

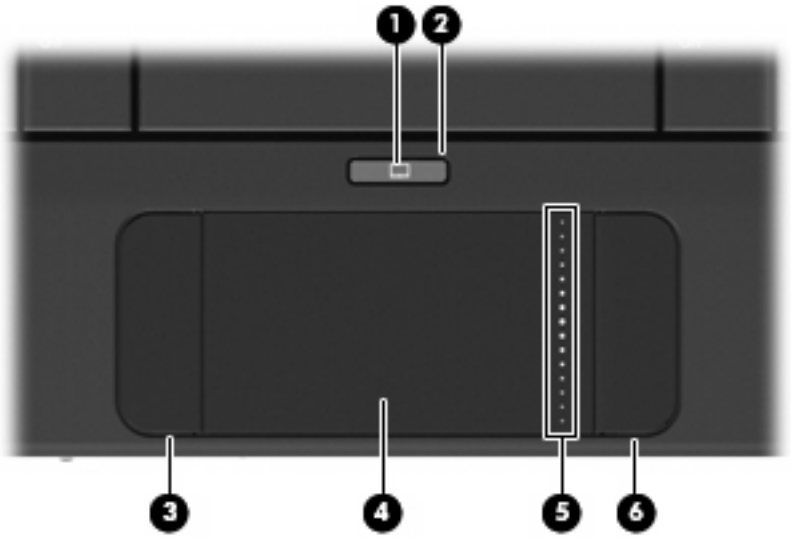
To see wireless regulatory notices, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. To access these notices, click **Start > Help and Support > User Guides**.

Keys



Item	Component	Function
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	Function keys	Execute frequently used system functions when pressed in combination with the fn key.
(3)	fn key	Executes frequently used system functions when pressed in combination with a function key.
(4)	Windows logo key	Displays the Windows Start menu.
(5)	Windows applications key	Displays a shortcut menu for items beneath the pointer.

TouchPad



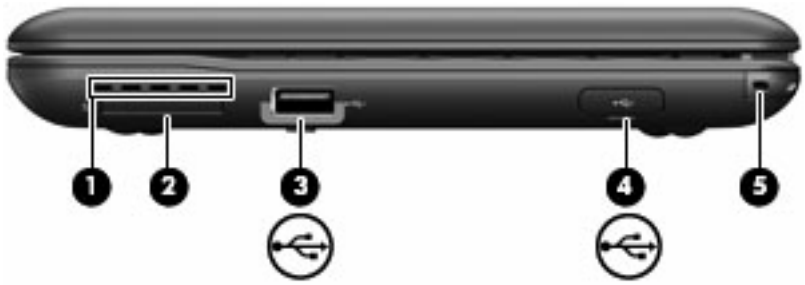
Item	Component	Function
(1)	TouchPad on/off button	Turns the TouchPad on and off.
(2)	TouchPad on/off light	• White: TouchPad is on. • Amber: TouchPad is off.
(3)	Left TouchPad button *	Functions like the left button on an external mouse.
(4)	TouchPad *	Moves the pointer and selects or activates items on the screen.
(5)	TouchPad scroll zone	Scrolls up or down.
(6)	Right TouchPad button *	Functions like the right button on an external mouse.

* This table describes factory settings. To view or change pointing device preferences, select **Start > Control Panel > Printers and Other Hardware > Mouse**.

Front components

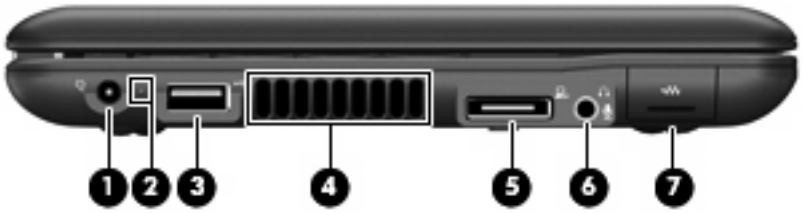
Item	Component	Function
(1)	Power light	• On: The device is on. • Blinking: The device is in Standby. • Off: The device is off.
(2)	Power switch	• When the device is off, slide the switch to turn on the device. • When the device is on, briefly slide the switch to initiate Hibernation. • When the device is in Standby, briefly slide the switch to exit Standby. • When the device is in Hibernation, briefly slide the switch to exit Hibernation. If the device has stopped responding and Windows shutdown procedures are ineffective, slide and hold the power switch for at least 5 seconds to turn off the device. To learn more about your power settings, select **Start > Control Panel > Performance and Maintenance > Power Options.**
(3)	Drive light	Blinking: The hard drive or flash drive is being accessed.
(4)	Battery light	• On: A battery is charging. • Blinking: A battery that is the only available power source has reached a low battery level. When the battery reaches a critical battery level, the battery light begins blinking rapidly. • Off: If the device is plugged into an external power source, the light turns off when all batteries in the device are fully charged. If the device is not plugged into an external power source, the light stays off until the battery reaches a low battery level.
(5)	Wireless light	• Blue: An integrated wireless device, such as a wireless local area network (WLAN) device, is on. • Amber: All wireless devices are off.
(6)	Wireless switch	Turns the wireless feature on or off, but does not establish a wireless connection. **NOTE:** A wireless network must be set up in order to establish a wireless connection.

Right-side components



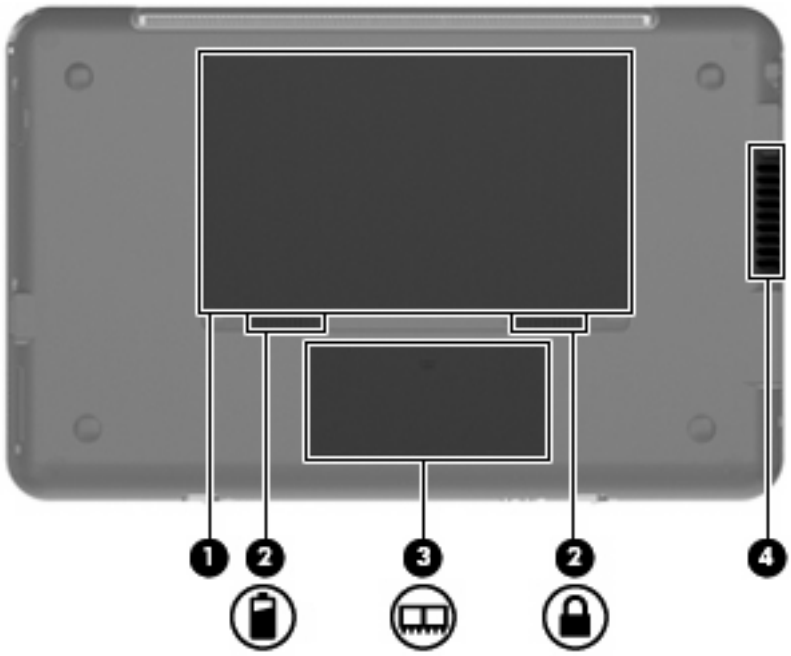
Item	Component	Function
(1)	Vent	Enables airflow to cool internal components **NOTE:** The device fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2)	SD Card Reader	Supports the following optional digital card formats: • MultiMediaCard (MMC) • Secure Digital (SD) Memory Card
(3)	USB port	Connects an optional USB device.
(4)	HP Mobile Drive (only on models with solid-state drives)	Connects an optional HP Mini Mobile Drive.
(5)	Security cable connector	Attaches an optional security cable to the device. **NOTE:** The security cable is designed to act as a deterrent, but it may not prevent the device from being mishandled or stolen.

Left-side components



Item	Component	Function
(1)	Power connector	Connects an AC adapter.
(2)	Power connector light	• On: The device is running on AC power. • Off: The device is running on battery power.
(3)	USB port	Connects an optional USB device.
(4)	Vent	Enables airflow to cool internal components. **NOTE:** The device fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)	Expansion port	Connects an optional VGA cable, which allows you to connect an external VGA monitor or projector.
(6)	Audio-out (headphone) jack/Audio-in (microphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset microphone. **WARNING!** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the *Regulatory, Safety and Environmental Notices*. **NOTE:** When a device is connected to the jack, the device speakers are disabled.
(7)	RJ-45 (network) jack	Connects a network cable.

Bottom components



Item	Component	Function
(1)	Battery bay	Holds the battery.
(2)	Battery release latches (2)	Release the battery from the battery bay.
(3)	Memory module compartment	Contains the memory module slot. **NOTE:** The release latch for the memory module compartment cover (not illustrated) is located underneath the right battery release latch.
(4)	Vent	Enables airflow to cool internal components. **NOTE:** The device fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.

3 Illustrated parts catalog

Serial number location

The service tag, affixed to the bottom of the device, provides information that may be needed when troubleshooting system problems. The service tag provides the following information:

(1) Product name: This is the product name affixed to the front of the device.

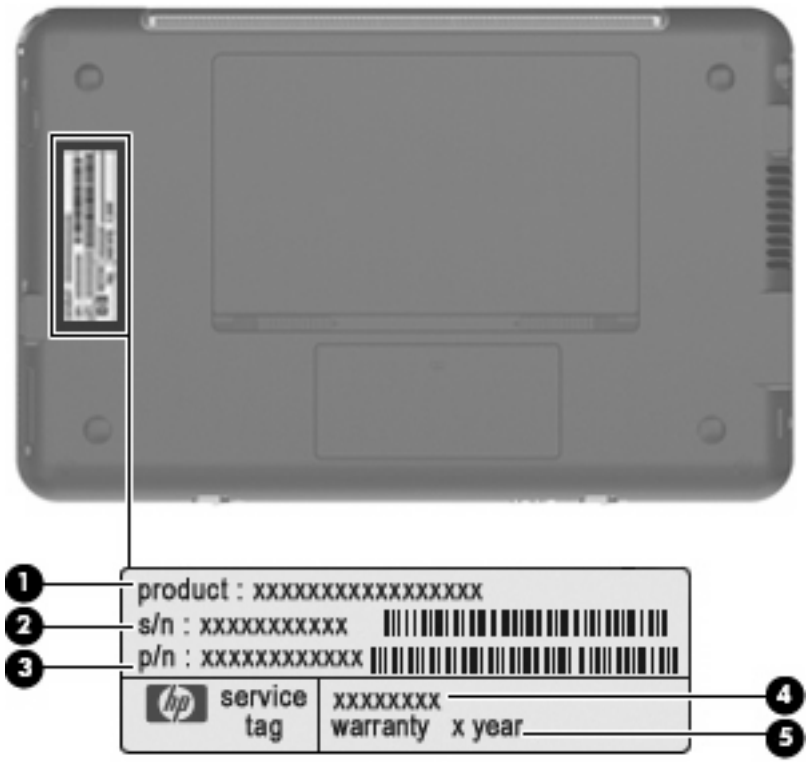
(2) Serial number (s/n): This is an alphanumeric identifier that is unique to each product.

(3) Part number/Product number (p/n): This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.

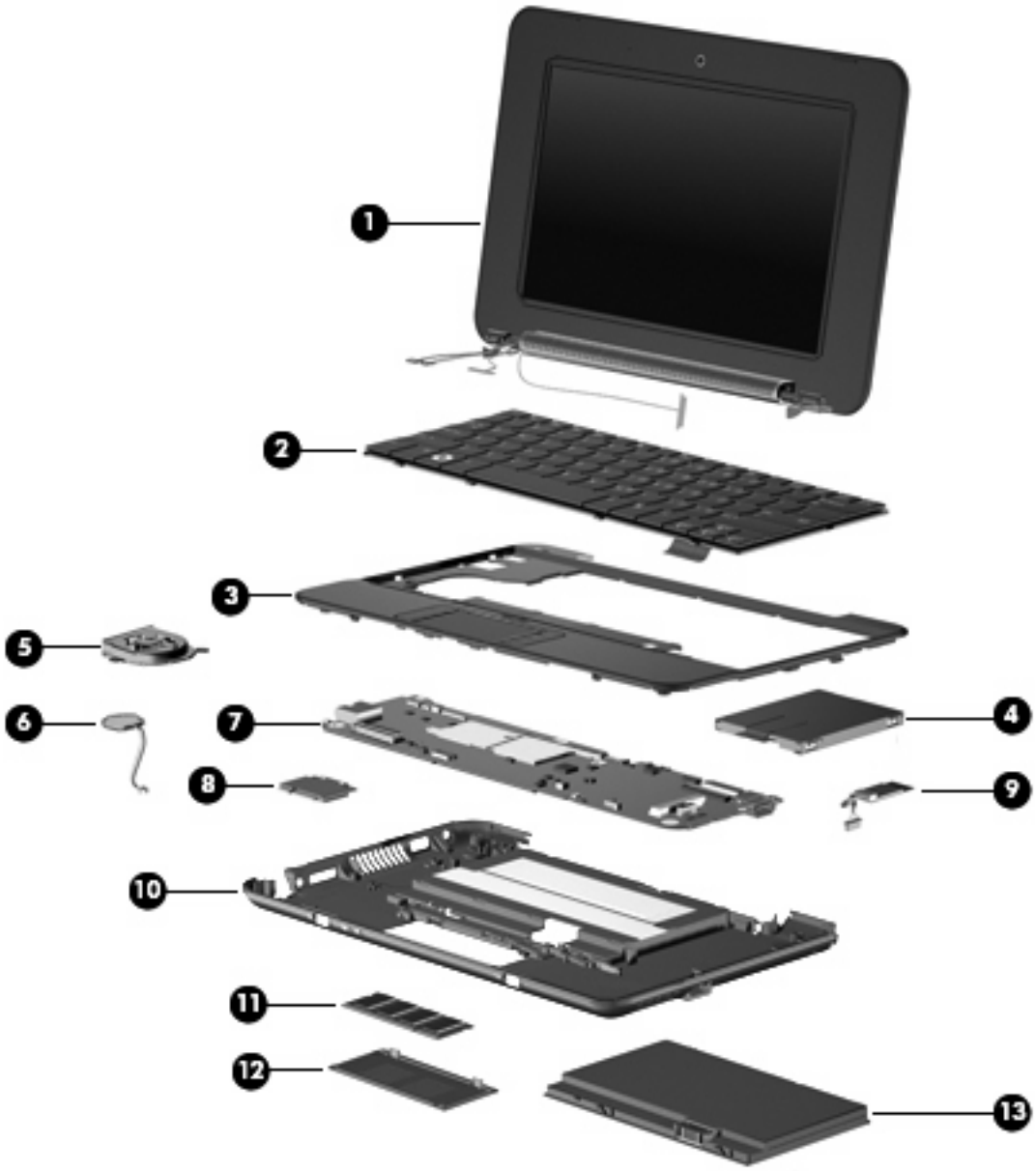
(4) Model description: This is the number used to locate documents, drivers, and support for the device.

(5) Warranty period: This number describes the duration of the warranty period for the device.

When ordering parts or requesting information, provide the device serial number and model description provided on the service tag.



Device major components

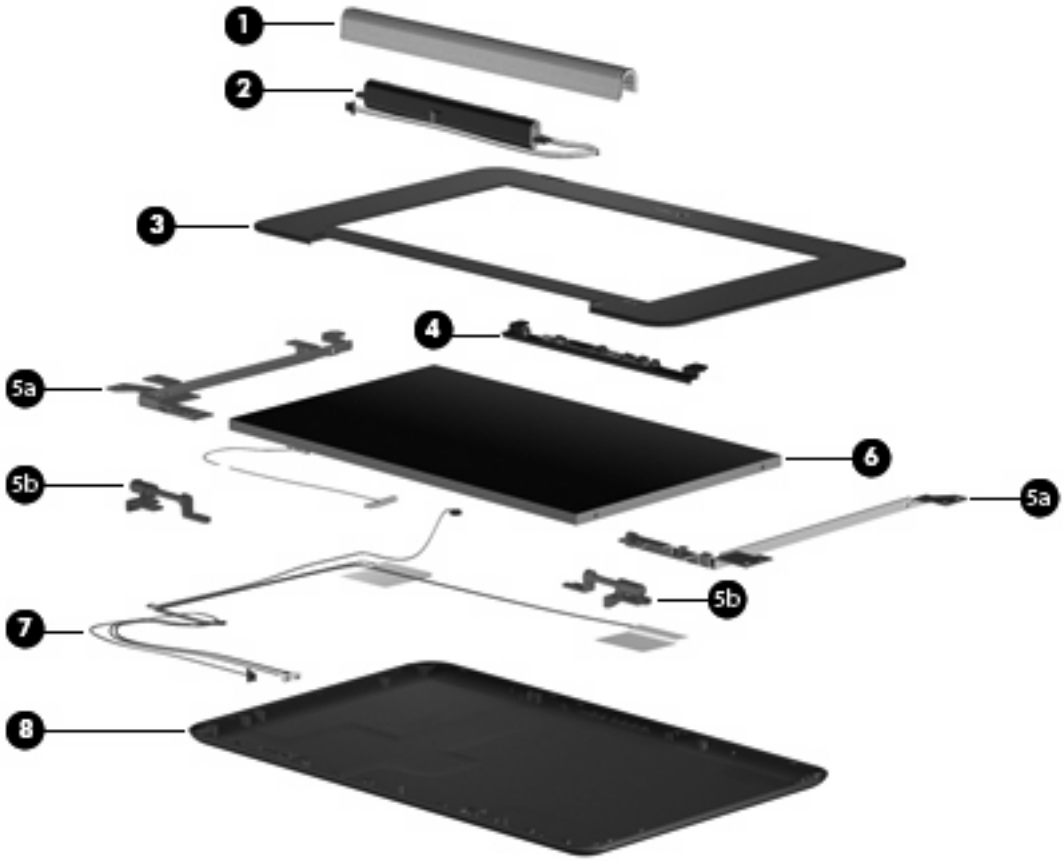


Item	Description	Spare part number
(1)	**Display assembly** (includes webcam, 1 microphone, and 2 WLAN antenna transceivers/ cables)	
	8.9-inch WSVGA BrightView	509698-001
	10.2-inch WSVGA AntiGlare	507310-001
	Refer to Display assembly components on page 15, for more display assembly component spare part information.	
(2)	**Keyboard**	
	For use in France	504611-051
	For use in Germany	504611-041

Item	Description	Spare part number
	For use in Italy	504611-061
	For use in Japan	504611-291
	For use in Latin America	504611-161
	For use in Saudi Arabia	504611-171
	For use in South Korea	504611-AD1
	For use in Taiwan	504611-AB1
	For use in Thailand	504611-281
	For use in the United Kingdom	504611-031
	For use in the United States	504611-001
(3)	**Top cover** (includes TouchPad)	504612-001
(4)	**Mass storage device**	
	Hard drive (includes FPC cable and bracket): 60-GB, 4200-rpm	504601-001
	Hard Drive Hardware Kit (includes bracket)	504607-001
	Solid-state drive (select models only, not illustrated; includes FPC cable and bracket)	
	16-GB	507314-001
	8-GB	507313-001
(5)	**Fan** **NOTE:** The fan spare part kit does not include a fan cable. The fan cable is included in the Cable Kit, spare part number 507708-001.	504615-001
	Heat sink assembly (not illustrated)	515099-001
(6)	**RTC battery**	507707-001
(7)	**System board** (includes processor, USB board, and heat sink assembly)	504592-001
(8)	**Wireless module**	
	Broadcom 4312 802.11/b/g WLAN modules:	
	For use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	504593-001

Item	Description	Spare part number
	For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	504593-002
	HP un2400 Mobile Broadband Module	483377-002
(9)	**Bluetooth module** **NOTE:** The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable is included in the Cable Kit, spare part number 507708-001.	507706-001
(10)	**Base enclosure** (includes 4 rubber feet)	506377-001
(11)	**Memory module** (PC2-4200, 533-MHz, DDR2)	
	1024-MB	504600-001
	512-MB	504599-001
(12)	**Memory module compartment cover** (see Plastics Kit on page 16 for spare part number information)	507317-001
(13)	**Battery**	
	3-cell, 26-Wh Li-Pol for use in all countries and regions except Germany	504610-001
	3-cell, 26-Wh Li-Pol for use only in Germany	504610-002

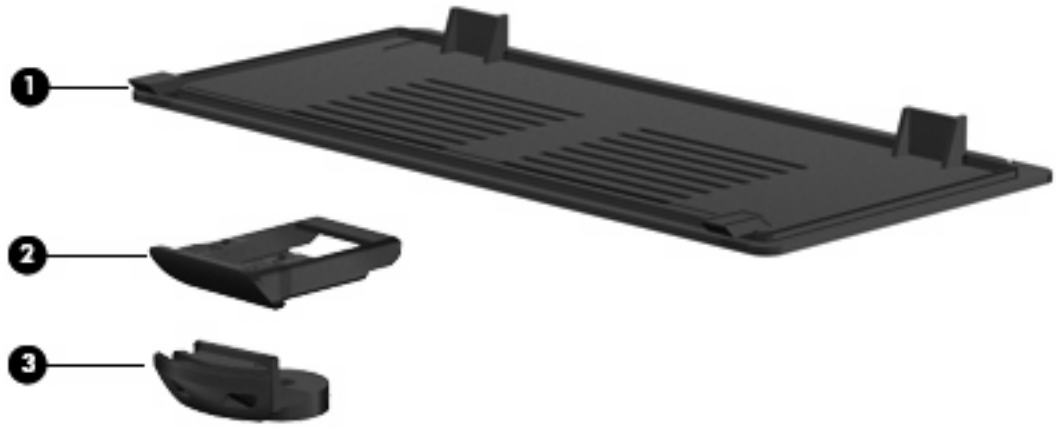
Display assembly components



Item	Description	Spare part number
(1)	**Speaker grill**	506338-001
(2)	**Speaker assembly** (includes left and right cables)	506335-001
(3)	**Display bezel** (for use with 8.9-inch panel only)	506333-001
(4)	**Webcam module** **NOTE:** The webcam module spare part kit does not include a webcam module cable. The webcam module cable is included in the Display Cable Kit, spare part number 504597-001.	504594-001
	Display Hinge Kit (for 8.9-inch panels only)	504596-001
(5a)	Left and right display panel brackets	
(5b)	Left and right display hinges	
(6)	**Display panel** (8.9-inch WSVGA BrightView; includes LCD cable and foil shield)	509698-001
(7)	**Display Cable Kit** (for 8.9-inch panels only; includes WLAN, microphone cable, and webcam module cable)	504597-001
(8)	**Display enclosure** (includes logo)	504595-001
	Display Rubber Kit (for 8.9-inch panels only, not illustrated)	509699-001

Item	Description	Spare part number
	Display Screw Kit (for 8.9-inch panels only, not illustrated)	509700-001
	Display panel foil shield (not illustrated)	506334-001

Plastics Kit



Item	Description	Spare part number
	Plastics Kit:	507317-001
(1)	Memory module compartment cover	
(2)	HP Mobile Drive cover (only on models with solid-state drives)	
(3)	Security cable connector	

Miscellaneous parts

Description	Spare part number
30-W UMA AC adapter (for use in all countries and regions except Germany)	496813-001
30-W UMA AC adapter (for use in Germany only)	512852-001
Power cord	
For use in Australia	490371-011
For use in Brazil	490371-201
For use in China	490371-AA1
For use in Denmark	490371-081
For use in Europe	490371-021
For use in India	490371-D61
For use in Japan	490371-291
For use in North America	490371-001
For use in South Korea	490371-AD1
For use in Taiwan	490371-AB1
For use in the United Kingdom and Singapore	490371-031
Screw Kit • Phillips PM2.0×3.0 screw • Phillips PM2.0×4.0 screw • Phillips PM2.0×6.0 screw • Phillips PM2.0×7.0 screw • Phillips PM2.0×8.0 screw • Phillips PM2.5×7.0 screw • Phillips PM2.5×9.0 screw	504614-001
System power printed circuit board (PCB) with USB and SIM	506336-001
VGA Cable	512315-001
Cable Kit • Bluetooth module cable • Internal display switch module • Fan cable • USB board cable	507708-001
Rubber Kit (contains 4 device feet and RJ-45 cover)	504613-001

Description	Spare part number
Bracket Kit • RJ-45 connector bracket • DC jack bracket (fits over power and USB ports) • USB connector bracket • 3G connector bracket • Actuators for power switch and wireless switch • Internal display switch bracket	507318-001
HP Mini Mobile Drive (supported on models with HP Mobile Drives)	
2-GB	512329-001
4-GB	512330-001
8-GB	512331-001
Slip case	512321-001

Sequential part number listing

Spare part number	Description
483377-002	HP un2400 Mobile Broadband Module
490371-001	Power cord for use in North America
490371-011	Power cord for use in Australia
490371-021	Power cord for use in Europe
490371-031	Power cord for use in the United Kingdom and Singapore
490371-081	Power cord for use in Denmark
490371-201	Power cord for use in Brazil
490371-291	Power cord for use in Japan
490371-AA1	Power cord for use in China
490371-AB1	Power cord for use in Taiwan
490371-AD1	Power cord for use in South Korea
490371-D61	Power cord for use in India
496813-001	30-W UMA AC adapter
504592-001	System board equipped with 1.6-GHz processor
504593-001	Broadcom 4312 802.11b/g WLAN module for use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States
504593-002	Broadcom 4312 802.11b/g WLAN module for use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe
504594-001	Webcam module **NOTE:** The webcam module spare part kit does not include a webcam module cable. The webcam module cable is included in the Display Cable Kit, spare part number 504597-001.
504595-001	Display enclosure (includes logo)
504596-001	Display Hinge Kit (for 8.9-inch panels only; includes left/right display hinges and left/right display panel brackets)

Spare part number	Description
504597-001	Display Cable Kit with WLAN, microphone cable, and webcam module cable (for 8.9-inch panels only)
504599-001	512-MB memory module (PC2-4200, 533-MHz, DDR2)
504600-001	1024-MB memory module (PC2-4200, 533-MHz, DDR2)
504601-001	60-GB, 4200-rpm hard drive (includes FPC cable and bracket)
504607-001	Hard Drive Hardware Kit (includes bracket)
504610-001	3-cell, 26-Wh Li-Pol battery for use in all countries and regions except Germany
504610-002	3-cell, 26-Wh Li-Pol battery for use only in Germany
504611-001	Keyboard for use in the United States
504611-031	Keyboard for use in the United Kingdom
504611-041	Keyboard for use in Germany
504611-051	Keyboard for use in France
504611-061	Keyboard for use in Italy
504611-161	Keyboard for use in Latin America
504611-171	Keyboard for use in Saudi Arabia
504611-281	Keyboard for use in Thailand
504611-291	Keyboard for use in Japan
504611-AB1	Keyboard for use in Taiwan
504611-AD1	Keyboard for use in South Korea
504612-001	Top cover (includes TouchPad)
504613-001	Rubber Kit (contains 4 device feet and RJ-45 cover)
504614-001	Screw Kit
504615-001	Fan **NOTE:** The fan spare part kit does not include a fan cable. The fan cable is included in the Cable Kit, spare part number 507708-001.
506333-001	Display bezel (for use with 8.9-inch panel only)
506334-001	Display panel foil shield
506335-001	Speaker assembly (includes left and right cables)
506336-001	System power printed circuit board (PCB) with USB and SIM
506337-001	Base enclosure (includes 4 rubber feet)
506338-001	Speaker grill
507309-001	8.9-inch WSGVA BrightView display assembly (includes 1 webcam, 1 microphone, and 2 WLAN antenna transceivers/cables)
507310-001	10.2-inch WSVGA AntiGlare display assembly (includes 1 webcam, 1 microphone, and 2 WLAN antenna transceivers/cables)
507313-001	8-GB solid-state drive (includes FPC cable and bracket)

Spare part number	Description
507314-001	16-GB solid-state drive (includes FPC cable and bracket)
507317-001	Plastics Kit (see Plastics Kit on page 16 for more Plastics Kit spare part number information)
507318-001	Bracket Kit
507706-001	Bluetooth module **NOTE:** The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable is included in the Cable Kit, spare part number 507708-001.
507707-001	RTC battery
507708-001	Cable Kit
509698-001	8.9-inch WSVGA BrightView display panel (includes LCD cable and foil shield)
509699-001	Display Rubber Kit (for 8.9-inch panels only)
509700-001	Display Screw Kit (for 8.9-inch panels only)
512315-001	VGA Cable
512321-001	Slip case
512329-001	HP Mini Mobile Drive, 2-GB
512330-001	HP Mini Mobile Drive, 4-GB
512331-001	HP Mini Mobile Drive, 8-GB
512852-001	30-W UMA AC adapter (for use only in Germany)
515099-001	Heat sink assembly

4 Removal and replacement procedures

Preliminary replacement requirements

Tools required

You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 and P000 screwdrivers

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.

NOTE: As you remove each subassembly from the device, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts

CAUTION: Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

Cables and connectors

CAUTION: When servicing the device, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the device.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

△ **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the device, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing a hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE.”

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

△ **CAUTION:** To prevent damage to the device when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Use nonmagnetic tools.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

△ **CAUTION:** A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels

	Relative humidity		
Event	**10%**	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm ±10% resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive strips must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.

Material	Use	Voltage protection level
Antistatic plastic	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

Unknown user password

If the device you are servicing has an unknown user password, follow these steps to clear the password:

NOTE: These steps also clear CMOS.

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the real-time clock (RTC) battery (see RTC battery on page 42).
6. Wait approximately 5 minutes.
7. Replace the RTC battery and reassemble the device.
8. Connect AC power to the device. Do not reinsert any batteries at this time.
9. Turn on the device.

All passwords and all CMOS settings have been cleared.

Component replacement procedures

This chapter provides removal and replacement procedures.

There are as many as 43 screws, in 8 different sizes, that must be removed, replaced, or loosened when servicing the device. Make special note of each screw size and location during removal and replacement.

Service tag

The service tag, affixed to the bottom of the device, provides information that may be needed when troubleshooting system problems. The service tag provides the following information:

(1) Product name: This is the product name affixed to the front of the device.

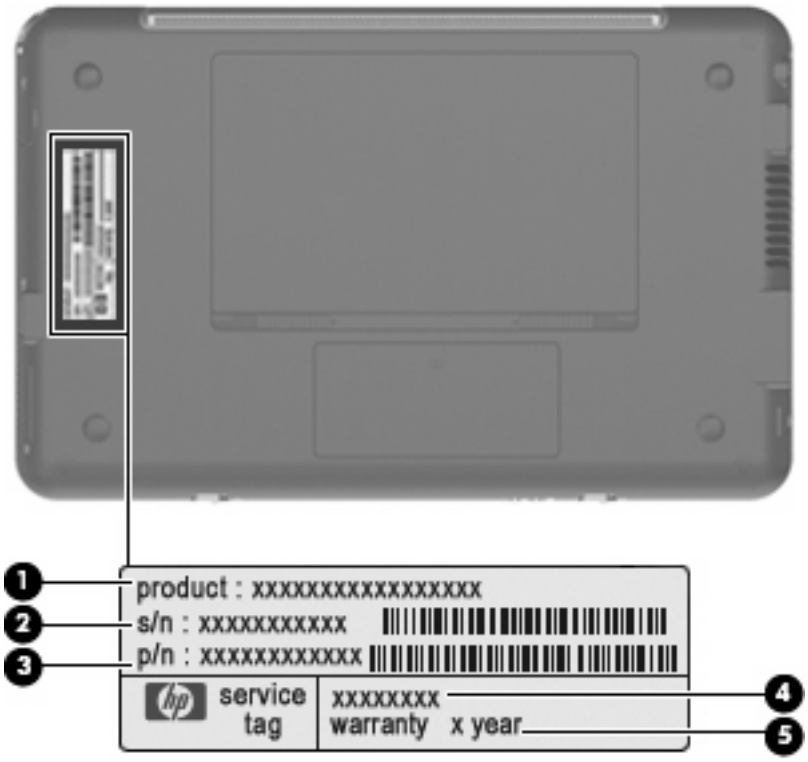
(2) Serial number (s/n): This is an alphanumeric identifier that is unique to each product.

(3) Part number/Product number (p/n): This number provides specific information about the product's hardware components. The part number helps a service technician to determine what components and parts are needed.

(4) Model description: This is the number used to locate documents, drivers, and support for the device.

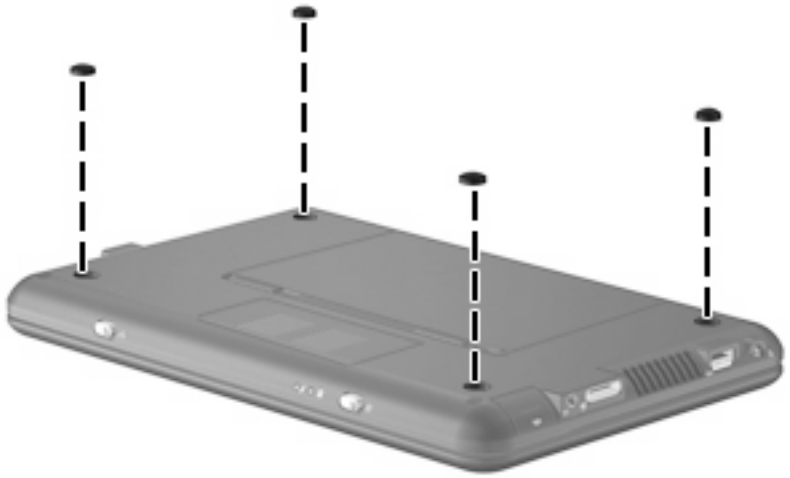
(5) Warranty period: This number describes the duration of the warranty period for the device.

When ordering parts or requesting information, provide the device serial number and model description provided on the service tag.



Device feet

The device feet are adhesive-backed rubber pads. The feet are included in the Rubber Kit, spare part number 504613-001. There are 4 rubber feet that are installed on the base enclosure in the locations illustrated below.



Battery

Description	Spare part number
3-cell, 26-Wh Li-Pol battery for use in all countries and regions except Germany	504610-001
3-cell, 26-Wh Li-Pol battery for use only in Germany	504610-002

Before disassembling the device, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.

Remove the battery:

1. Turn the device upside down on a flat surface, with the battery bay toward you.
2. Slide the battery release latches **(1)** to release the battery.
3. Pivot the battery upward **(2)** and remove the battery **(3)** from the device.

To install the battery, insert the rear edge of the battery into the battery bay and pivot the battery downward until it is seated. The battery release latch automatically locks the battery into place.

Memory module

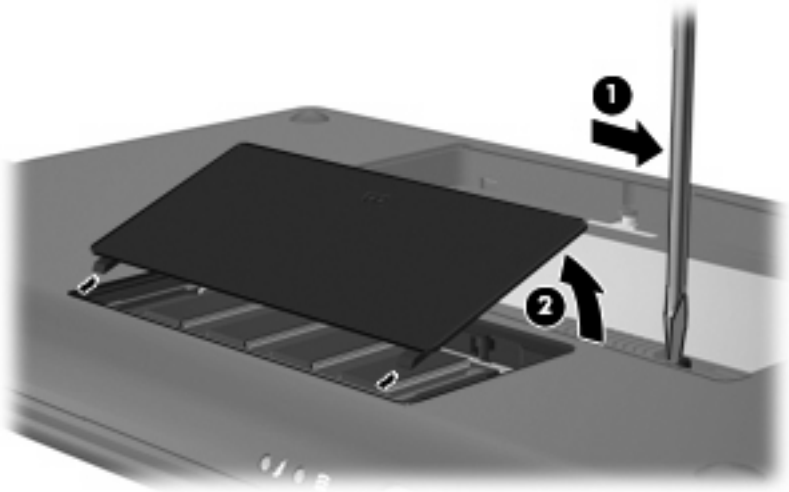
Description	Spare part number
1024-MB (PC2-4200, 533-MHz, DDR2)	504600-001
512-MB (PC2-4200, 533-MHz, DDR2)	504599-001

Before removing the memory module, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).

Remove the memory module:

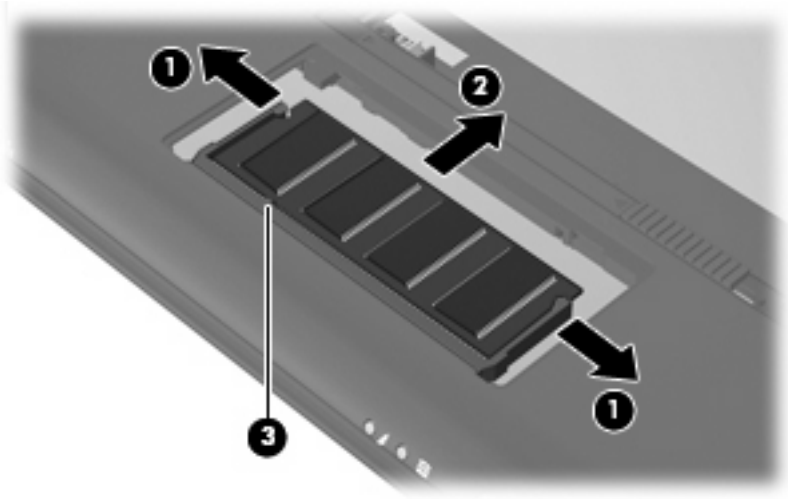
1. Slide the right battery release latch to the inside or “unlocked” position to reveal the release latch for the memory module compartment cover. Use a thin, narrow tool to slide the release latch to the outside or “unlocked” position **(1)**. (The edge of the cover rises away from the device.)
2. Remove the cover **(2)**. The memory module compartment cover is included in the Plastics Kit, spare part number 507317-001.



3. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The edge of the module opposite the slot rises away from the device.)

4. Remove the memory module **(2)** by pulling the module away from the slot at an angle.

NOTE: Memory modules are designed with a notch **(3)** to prevent incorrect insertion into the memory module slot.



Reverse this procedure to install a memory module.

Keyboard

Description	Spare part number	Description	Spare part number
For use in France	504611-051	For use in South Korea	504611-AD1
For use in Germany	504611-041	For use in Taiwan	504611-AB1
For use in Italy	504611-061	For use in Thailand	504611-281
For use in Japan	504611-291	For use in the United Kingdom	504611-031
For use in Latin America	504611-161	For use in the United States	504611-001
For use in Saudi Arabia	504611-171		

Before removing the keyboard, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).

Remove the keyboard:

1. Remove the black Phillips PM2.0×4.0 screw (on the back wall of the battery bay) that secures the keyboard to the device.

2. Turn the device display-side up, with the front toward you.
3. Open the device as far as possible.

4. Grasp the tabs on the outer edges of the keyboard **(1)**, lift the rear edge of the keyboard **(2)** until it rests at an angle, and then slide it back **(3)** until it rests on the display assembly.

5. Release the zero insertion force (ZIF) connector **(1)** to which the keyboard cable is attached, and then disconnect the cable **(2)** from the system board.

6. Remove the keyboard.

Reverse this procedure to install the keyboard.

Mass storage devices

NOTE: Each hard drive spare part kit and solid-state drive spare part kit includes an FPC cable and bracket.

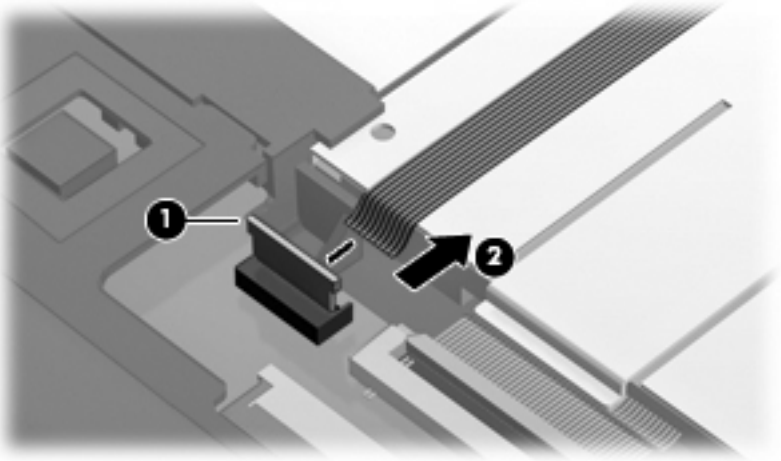
Description	Spare part number
60-GB, 4200-rpm hard drive	504601-001
8-GB solid-state drive	507313-001
16-GB solid-state drive	507314-001

Before removing the hard drive or solid-state drive, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the keyboard (see Keyboard on page 33).

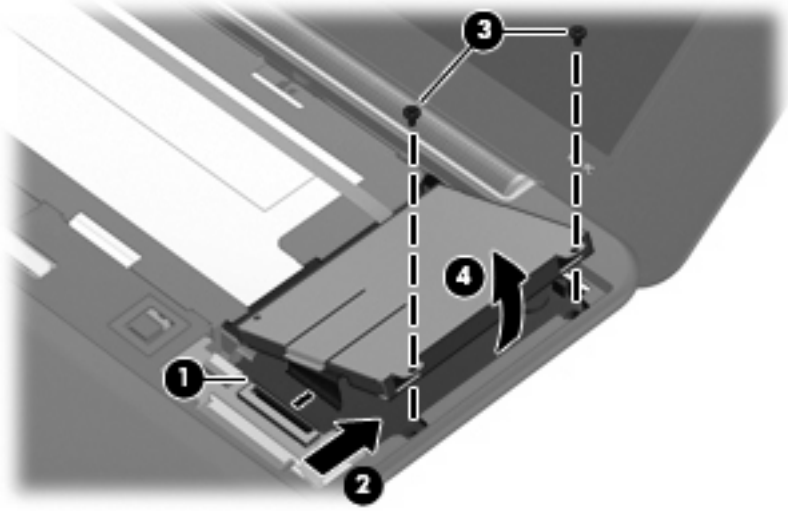
To remove the hard drive:

1. Release the ZIF connector **(1)** to which the USB board pass-through cable is attached. The cable lies across the top of the hard drive.
2. Disconnect the USB board pass-through cable **(2)**, and then detach the tape from the top of the hard drive.



3. Release the low insertion force (LIF) connector **(1)** to which the hard drive cable is attached, and then disconnect the cable **(2)**.
4. Remove the two silver Phillips PM2.0×6.0 screws **(3)** that secure the drive to the device.

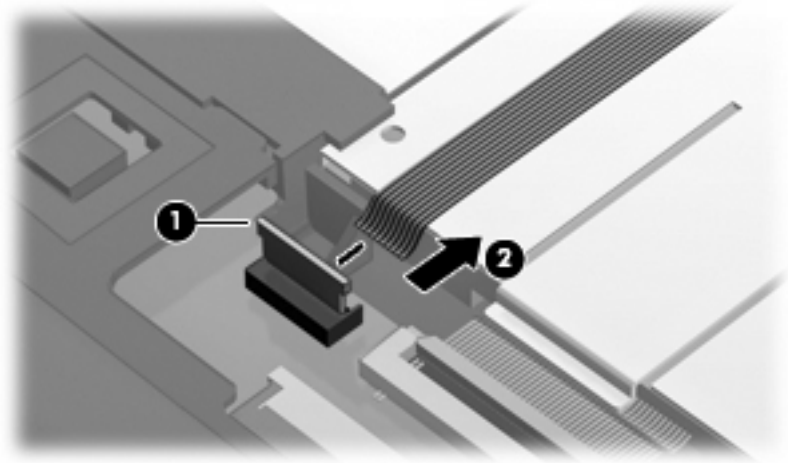
5. Grasp the Mylar tab on the drive, lift the drive up **(4)**, and then slide it out of the drive bay.



Reverse this procedure to install the hard drive.

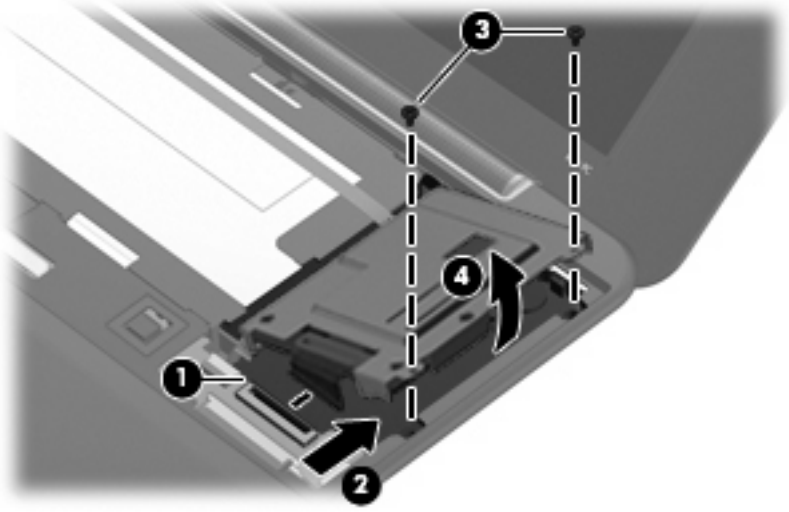
To remove the solid-state drive:

1. Release the ZIF connector **(1)** to which the USB board pass-through cable (that lies across the top of the drive) is attached.
2. Disconnect the USB board pass-through cable **(2)**, and then detach the tape from the top of the drive.



3. Release the LIF connector **(1)** to which the solid-state drive cable is attached, and then disconnect the cable **(2)**.
4. Remove the two black Phillips PM2.0×3.0 screws **(3)** that secure the drive bracket to the device.

5. Remove the bracket from the drive bay **(4)**. The solid-state drive is attached to the underside of the bracket.



Reverse this procedure to install the solid-state drive.

Top cover

Description	Spare part number
Top cover (includes TouchPad)	504612-001

Before removing the top cover, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the keyboard (see Keyboard on page 33).
6. Remove the hard drive or solid-state drive (see Mass storage devices on page 35).

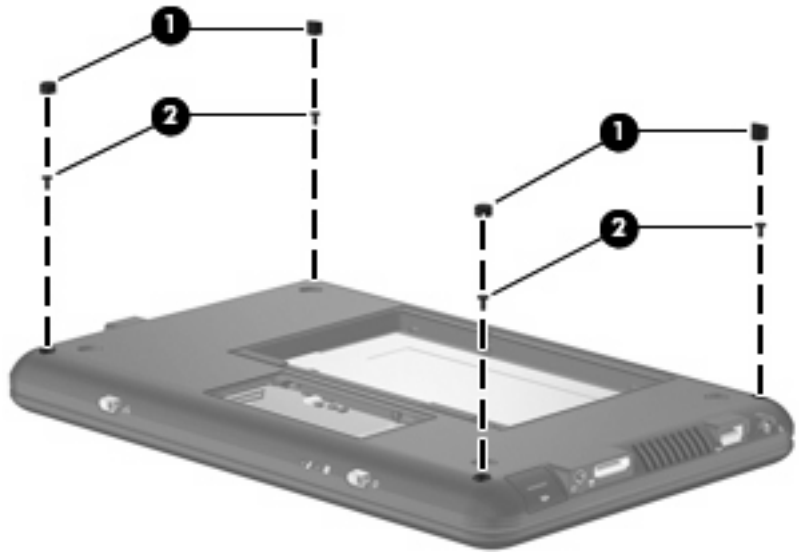
Remove the top cover:

1. Turn the device upside down, with the front toward you.
2. Use a thin, flat tool to remove the four screw covers **(1)**.

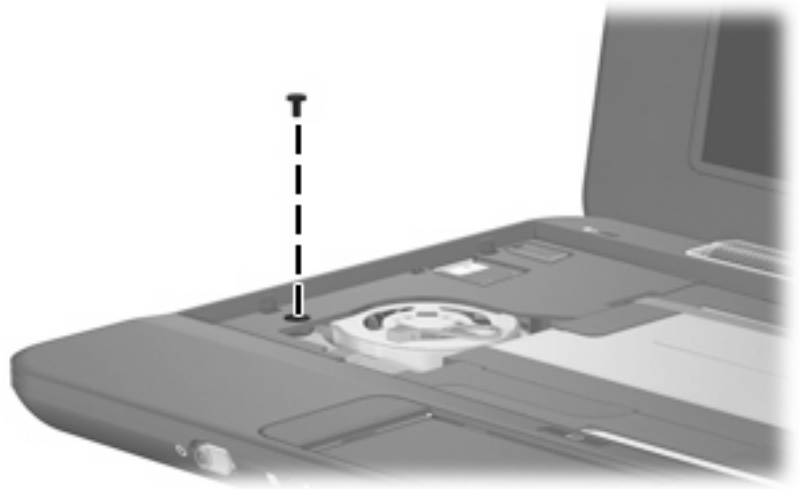
There are three different variations of the covers, each of which is shaped like a rounded square:

- The two front covers are short in height and are notched to prevent incorrect insertion.
- The right rear cover is taller in height and is notched.
- The left rear cover is taller in height and is *not* notched.

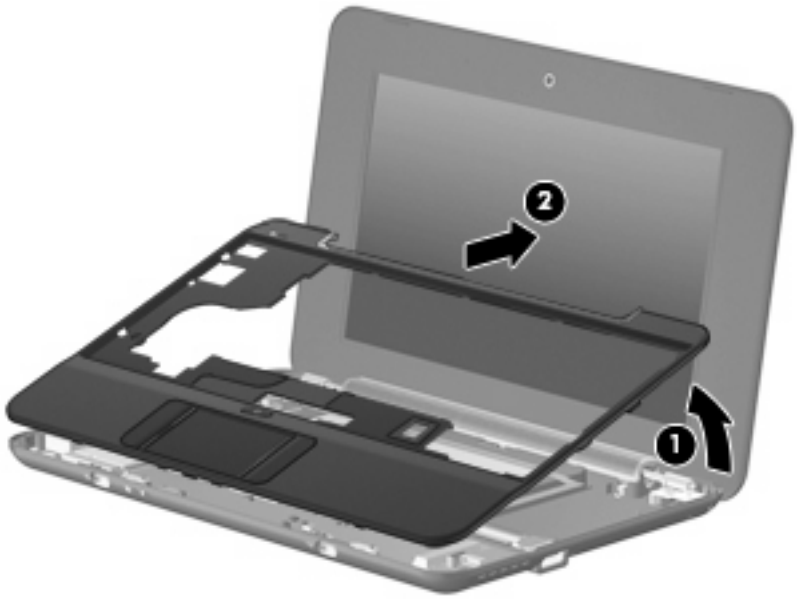
3. Remove the four black Phillips PM2.5×9.0 screws **(2)** that secure the top cover to the base enclosure.



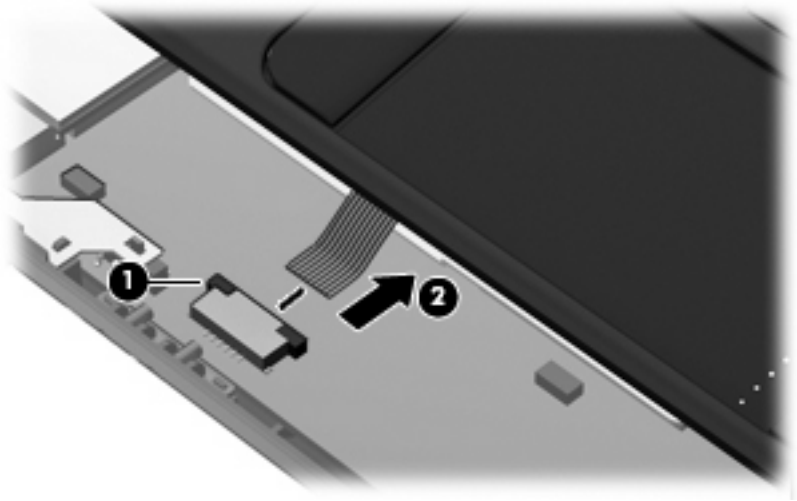
4. Turn the device right-side up, with the front toward you.
5. Open the device as far as possible.
6. Remove the black Phillips PM2.0×7.0 screw that secures the top cover to the base enclosure.



7. Lift the rear edge of the top cover **(1)**, swing it up, and then slide it back slightly to rest against the display assembly at an angle **(2)**.



8. Release the ZIF connector **(1)** to which the TouchPad button board cable is connected, and then disconnect the cable **(2)** from the system board.



9. Remove the top cover.

Reverse this procedure to install the top cover.

WLAN module

Description	Spare part number
Broadcom 4312 802.11/b/g WLAN modules:	
For use in Canada, the Cayman Islands, Guam, Puerto Rico, the U.S. Virgin Islands, and the United States	504593-001
For use in Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, the British Virgin Islands, Brunei, Bulgaria, Burkina Faso, Burundi, Cameroon, Cape Verde, the Central African Republic, Chad, Chile, the People's Republic of China, Colombia, Comoros, the Congo, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Djibouti, Dominica, the Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, French Guiana, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar, Greece, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissa, Guyana, Haiti, Honduras, Hong Kong, Hungary, Iceland, India, Ireland, Israel, Italy, the Ivory Coast, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, the Maldives, Mali, Malta, the Marshall Islands, Martinique, Mauritania, Mauritius, Mexico, Micronesia, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nauru, Nepal, the Nether Antilles, the Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal, the Republic of Moldova, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, the Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, the Solomon Islands, Somalia, South Africa, South Korea, Spain, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Swaziland, Sweden, Switzerland, Taiwan, Tajikistan, Tanzania, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, the United Arab Emirates, the United Kingdom, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zaire, Zambia, and Zimbabwe	504593-002

Before removing the WLAN module, follow these steps:

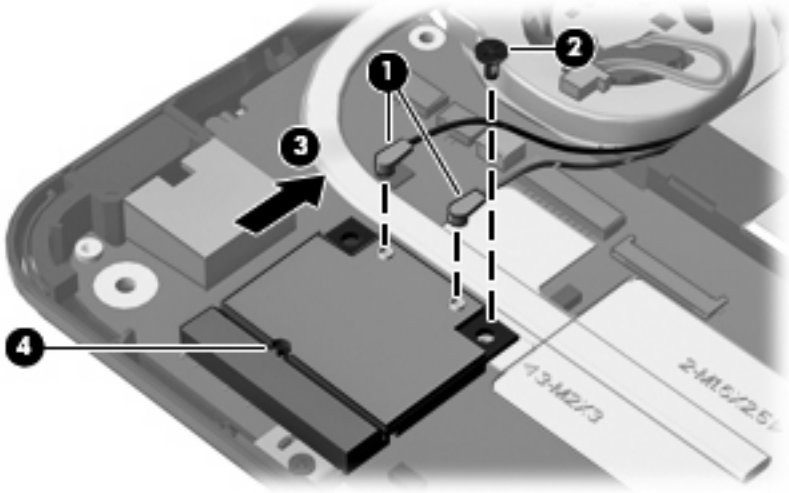
1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)

Remove the WLAN module:

△ **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the device by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore device functionality, and then contact technical support through Help and Support.

1. Disconnect the wireless antenna cables **(1)** from the terminals on the WLAN module.
2. Remove the black Phillips PM2.0×3.0 screw **(2)** that secures the WLAN module to the system board. (The edge of the module opposite the slot rises away from the device.)
3. Remove the WLAN module **(3)** by pulling the module away from the slot at an angle.

NOTE: WLAN modules are designed with a notch **(4)** to prevent incorrect insertion.



Reverse this procedure to install the WLAN module.

RTC battery

NOTE: Removing the RTC battery and leaving it uninstalled for 5 or more minutes causes all passwords and CMOS settings to be cleared.

Description	Spare part number
RTC battery	507707-001

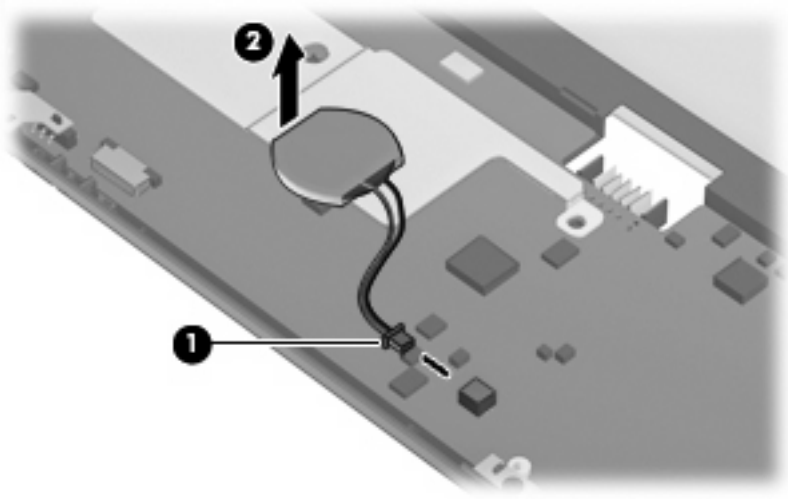
Before removing the real-time clock (RTC) battery, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)

Remove the RTC battery:

1. Disconnect the RTC battery cable **(1)** from the system board.
2. Detach the RTC battery **(2)** from the system board, and then remove the RTC battery.

NOTE: The RTC battery is attached to the system board with double-sided tape.



Reverse this procedure to install the RTC battery.

Bluetooth module

NOTE: The Bluetooth module spare part kit does not include a Bluetooth module cable. The Bluetooth module cable is included in the Cable Kit, spare part number 507708-001.

Description	Spare part number
Bluetooth module	507706-001

Before removing the Bluetooth module, follow these steps:

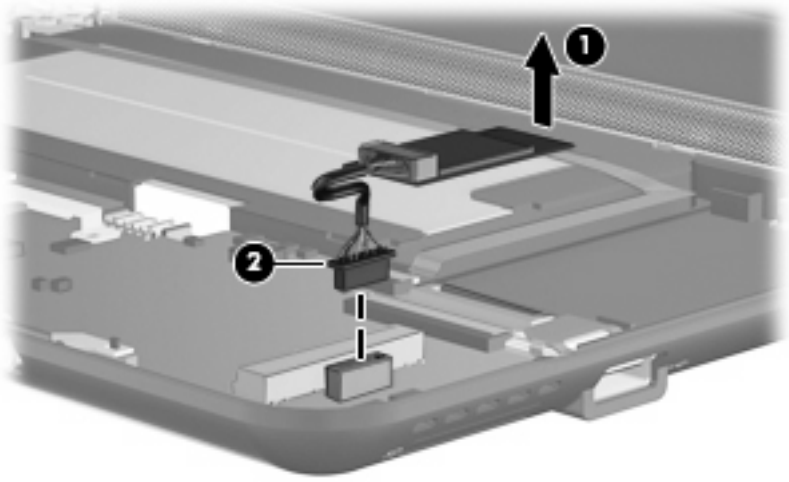
1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)

Remove the Bluetooth module:

1. Detach the Bluetooth module **(1)** from the system board.

NOTE: The Bluetooth module is attached to the system board by double-sided tape.

2. Disconnect the Bluetooth module cable **(2)**.



Reverse this procedure to install the Bluetooth module.

System board

NOTE: The system board spare part kit includes a processor, USB board, and heat sink assembly.

Description	Spare part number
System board equipped with 1.6-GHz processor	504592-001

Before removing the system board, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)

When replacing the system board, be sure that the following components are removed from the defective system board and installed on the replacement system board:

- WLAN module (see WLAN module on page 40)
- RTC battery (see RTC battery on page 42)
- Bluetooth module (see Bluetooth module on page 43)
- Heat sink assembly (see Heat sink assembly on page 47)

Remove the system board:

1. Disconnect the wireless antenna cables from the terminals on the WLAN module (see WLAN module on page 40).

2. Disconnect the following cables from the system board:

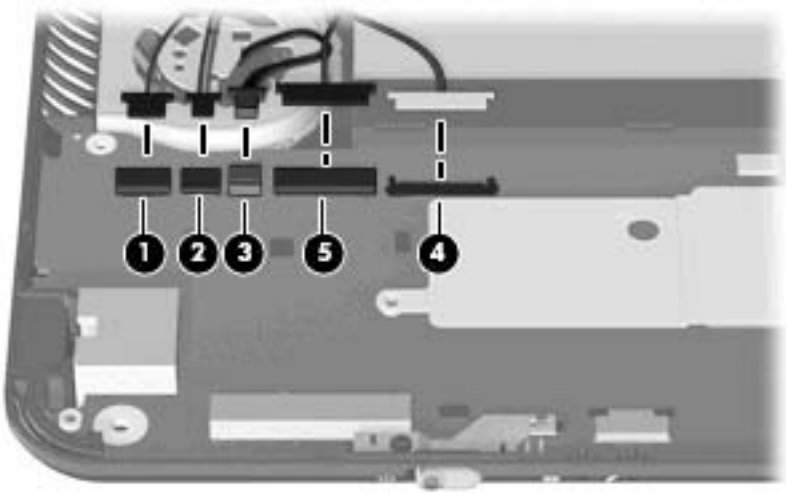
   (1) Speaker cables

   (2) Microphone cable

   (3) Fan cable

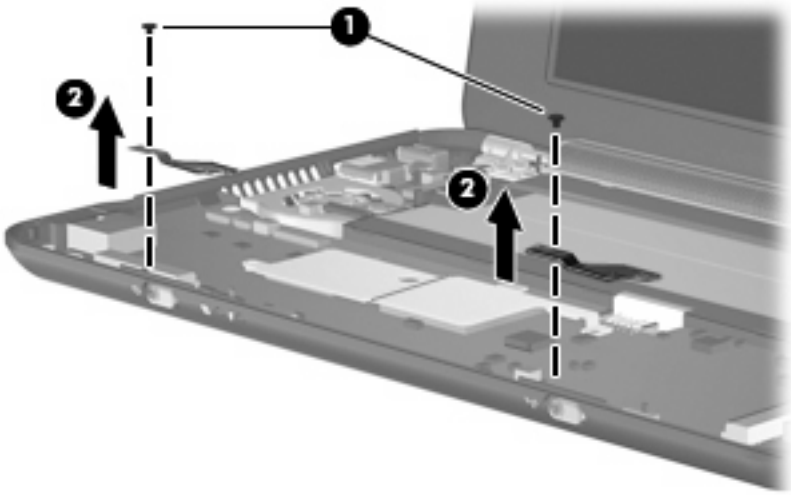
   (4) Display panel cable

NOTE: The USB board pass-through cable **(5)** was disconnected earlier (see Mass storage devices on page 35).



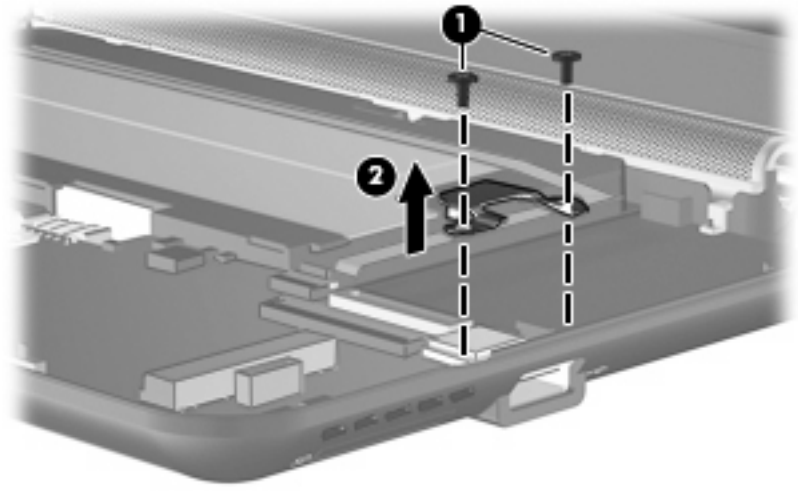
3. Remove the two silver Phillips PM2.0×3.0 screws **(1)** that secure the actuators for the power switch and wireless on/off switch to the system board, and then remove the actuators **(2)**.

NOTE: The actuators are included in the Bracket Kit, spare part number 507318-001.

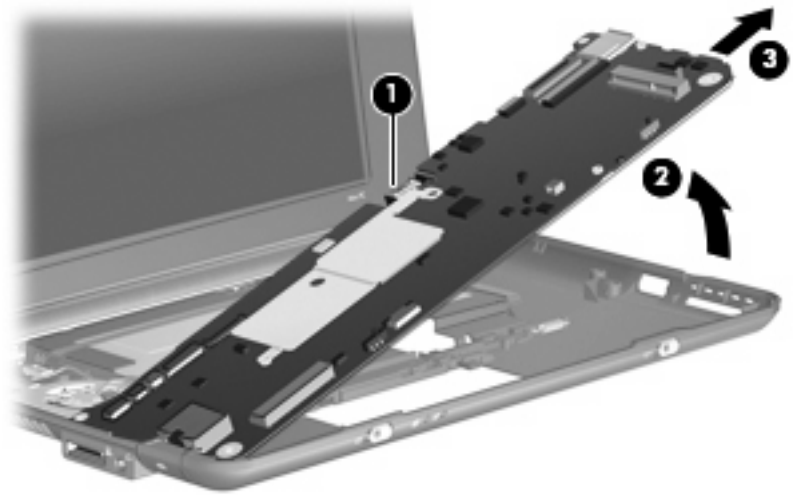


4. Remove the two black Phillips PM2.0×4.0 screws **(1)** that secure the USB connector bracket to the base enclosure, and then remove the bracket **(2)**.

NOTE: The USB connector bracket is included in the Bracket Kit, spare part number 507318-001.



5. Grasp the system board at its midpoint **(1)** and lift the right side up **(2)**.
6. Remove the system board **(3)**.



Reverse the procedure to install the system board.

Heat sink assembly

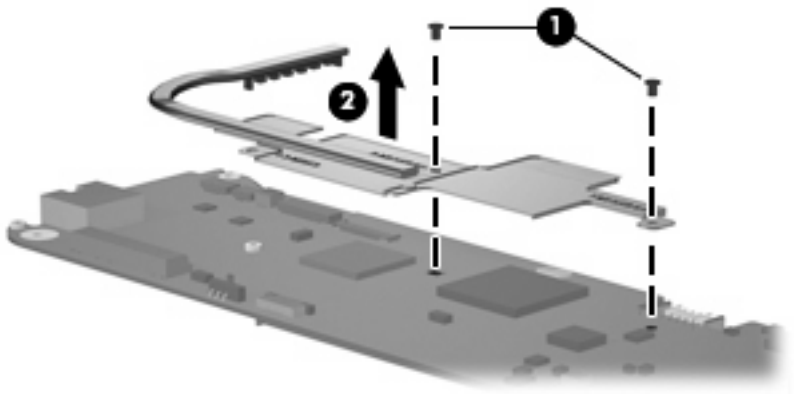
Description	Spare part number
Heat sink assembly	515099-001

Before removing the heat sink assembly, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)
   d. WLAN module (see WLAN module on page 40)

Remove the heat sink assembly:

1. Remove the two silver Phillips PM1.6×2.5 screws that secure the heat sink assembly to the system board **(1)**.
2. Remove the heat sink assembly **(2)**.



Reverse this procedure to install the heat sink assembly.

Fan

NOTE: The fan spare part kit does not include a fan cable. The fan cable is included in the Cable Kit, spare part number 507708-001.

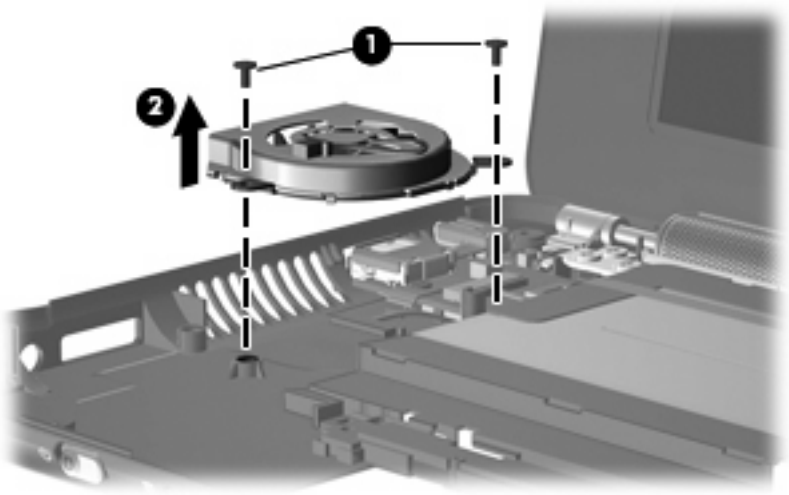
Description	Spare part number
Fan	504615-001

Before removing the fan, follow these steps:

1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)
   d. System board (see System board on page 44)

Remove the fan:

1. Remove the two black Phillips PM2.0×4.0 screws **(1)** that secure the fan to the base enclosure.
2. Remove the fan **(2)**.



Reverse this procedure to install the fan.

NOTE: To properly ventilate the device, allow at least a 7.6-cm (3-inch) clearance on the left side of the device.

The device uses an electric fan for ventilation. The fan is controlled by a temperature sensor and is designed to turn on automatically when high temperature conditions exist. These conditions are affected by high external temperatures, system power consumption, power management/battery conservation configurations, battery fast charging, and software requirements. Exhaust air is displaced through the ventilation grill located on the left side of the device.

Display assembly

NOTE: Each display assembly spare part kit includes 1 microphone, 2 speakers, and 2 WLAN antenna transceivers/cables).

Description	Spare part number
8.9-inch WSVGA BrightView	507309-001
10.2-inch WSVGA AntiGlare	507310-001
Refer to Display assembly components on page 15, for more display assembly component spare part information.	

Before removing the display assembly, follow these steps:

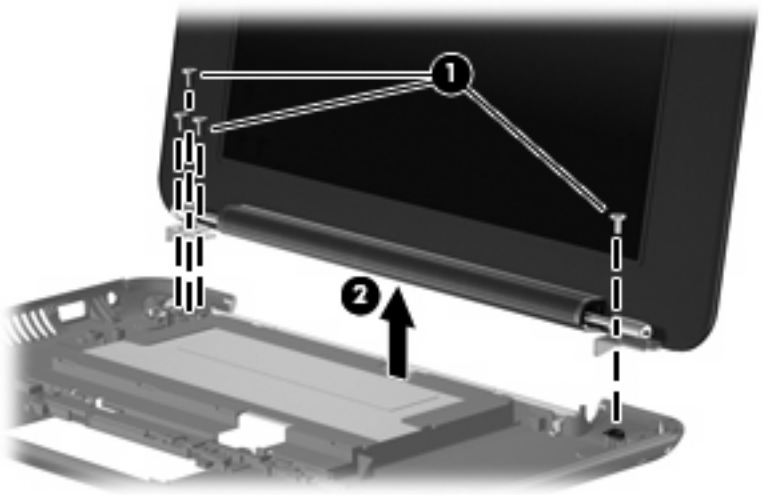
1. Shut down the device. If you are unsure whether the device is off or in Hibernation, turn the device on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the device.
3. Disconnect the power from the device by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the device.
4. Remove the battery (see Battery on page 30).
5. Remove the following components:
   a. Keyboard (see Keyboard on page 33)
   b. Hard drive or solid-state drive (see Mass storage devices on page 35)
   c. Top cover (see Top cover on page 37)

Remove the display assembly:

CAUTION: Support the display assembly when removing the following screws. Failure to support the display assembly can result in damage to the display assembly and other device components.

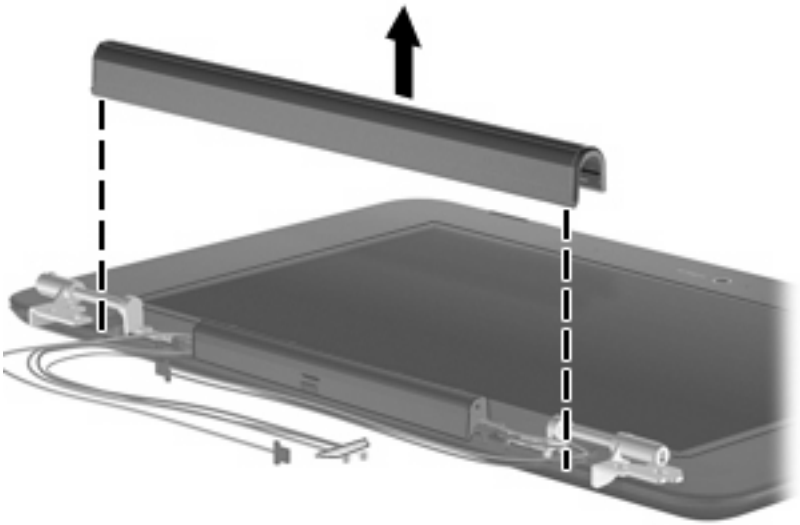
1. Remove the four silver Phillips PM2.5×7.0 screws **(1)** that secure the display assembly to the device.

2. Lift the display assembly **(2)** straight up and remove it.



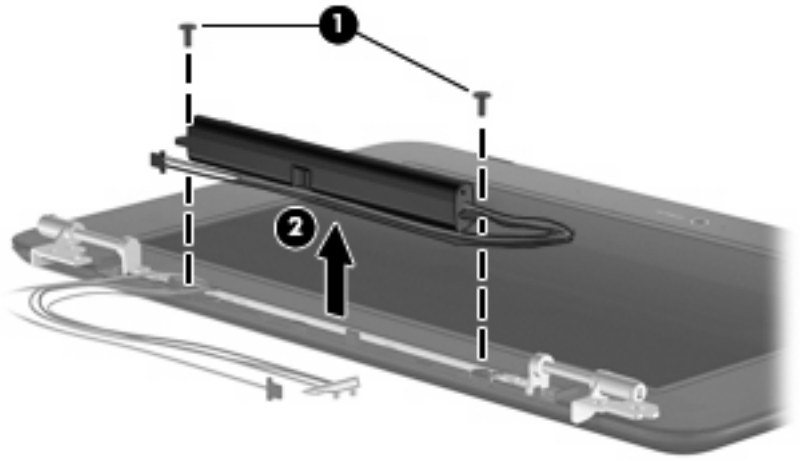
3. If it is necessary to replace the speakers, perform the following steps:

   a. Squeeze the sides of the speaker grill together to release the pressure clips, and then remove the speaker grill. The speaker grill is available using spare part number 506338-001.

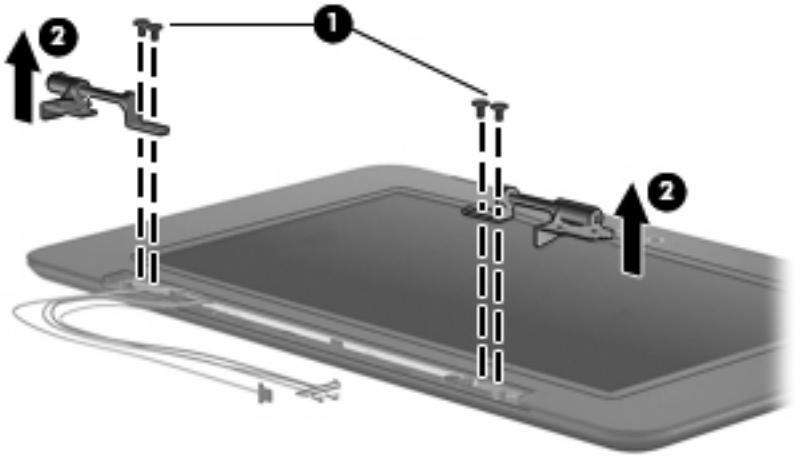


   b. Remove the two black Phillips PM2.0×8.0 screws **(1)** that secure the speaker assembly to the display enclosure. All display assembly subcomponent screws (for 8.9-inch panels only) are available in the Display Screw Kit, spare part number 509700-001.

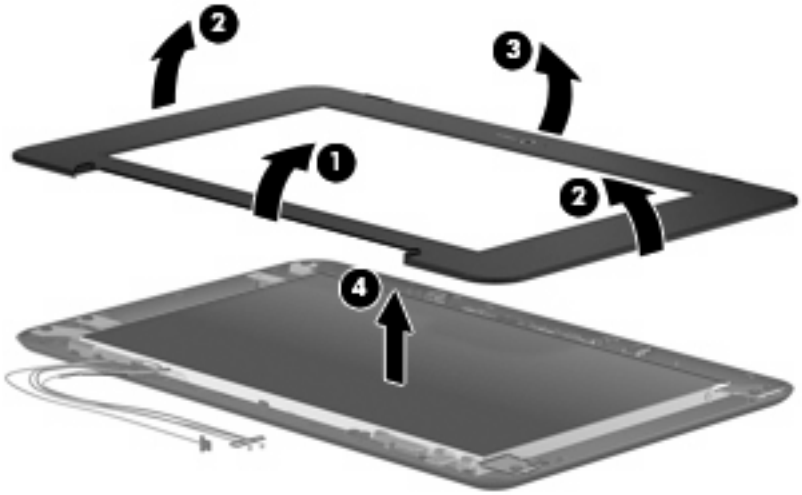
c. Remove the speaker assembly **(2)**. The speaker assembly is available using spare part number 506335-001.



4. If it is necessary to replace the display hinges, remove the two silver Phillips PM2.0×6.0 screws **(1)** that secure each hinge to the display enclosure, and then remove the hinges **(2)**. The hinges (for 8.9-inch panels only) are available in the Display Hinge Kit, spare part number 504596-001.



5. If it is necessary to replace the display bezel (8.9-inch panel only), flex the inside edges of the bottom **(1)**, left and right sides **(2),** and the top **(3)** of the display bezel until the bezel disengages from the display enclosure, and then remove the display bezel **(4)**.

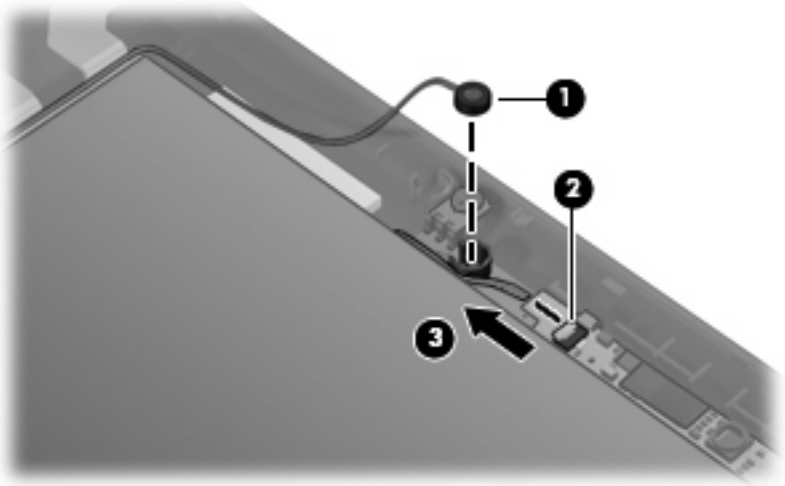


The display bezel, spare part number 506333-001, is for use with 8.9-inch panel only.

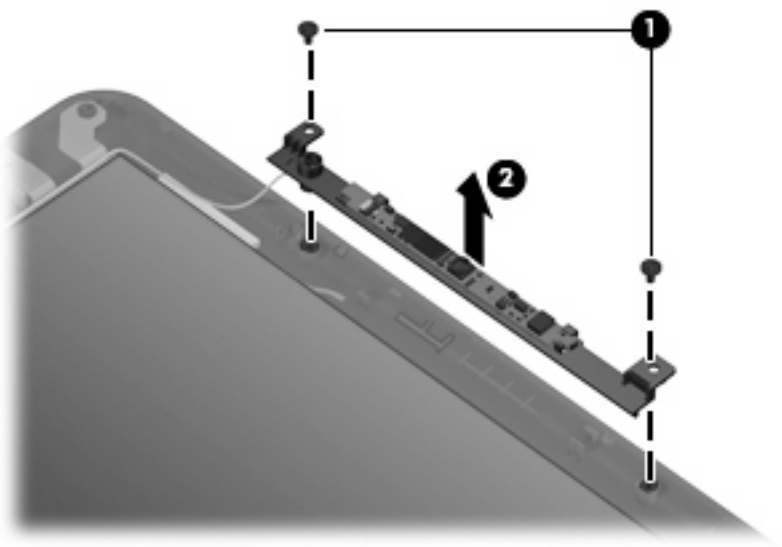
6. If it is necessary to replace the webcam module, perform the following steps:

   a. Open the tab built into the display enclosure shielding that secures the microphone cable, and then release the microphone from its clip **(1)**.

   b. Release the ZIF connector **(2)** to which the webcam module cable is attached, and then disconnect the webcam module cable from the display enclosure **(3)**. The microphone and webcam module cables (for 8.9-inch panels only) are available in the Display Cable Kit, spare part number 504597-001.

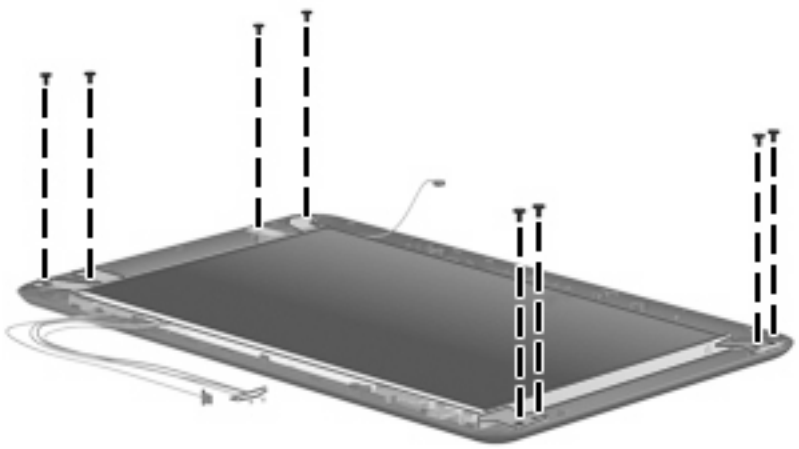


c. Remove the two black Phillips PM2.0×4.0 screws **(1)** that secure the webcam module to the display enclosure, and then remove the webcam module **(2)**. The webcam module is available using spare part number 504594-001.



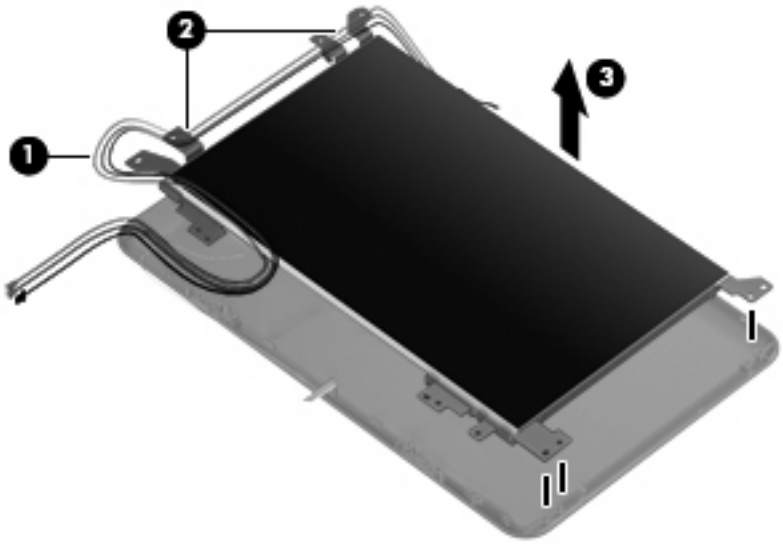
7. If it is necessary to replace the display panel, perform the following steps:

a. Remove the eight black Phillips PM2.0×4.0 screws that secure the display panel to the display enclosure.



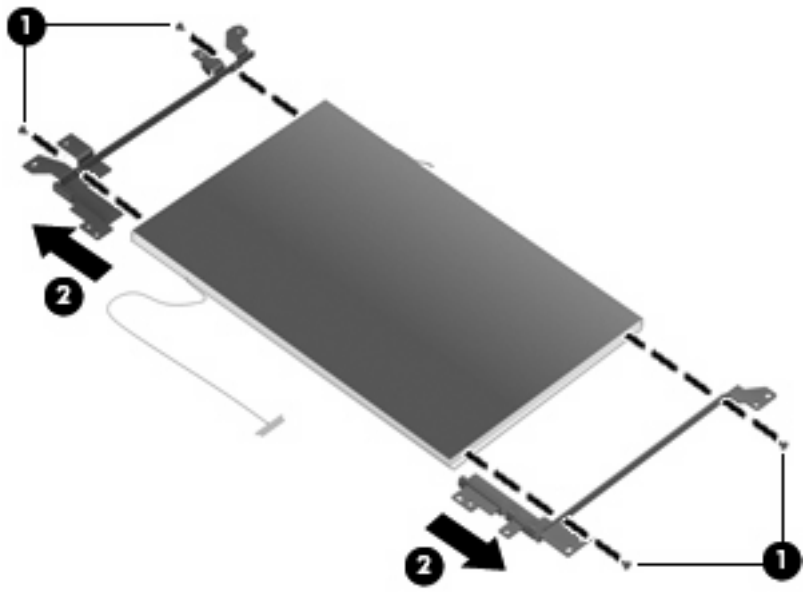
b. Remove the wireless antenna cables **(1)** from the clips and routing channels built into the display and brackets **(2)**.

c. Remove the display panel from the display enclosure **(3)**.

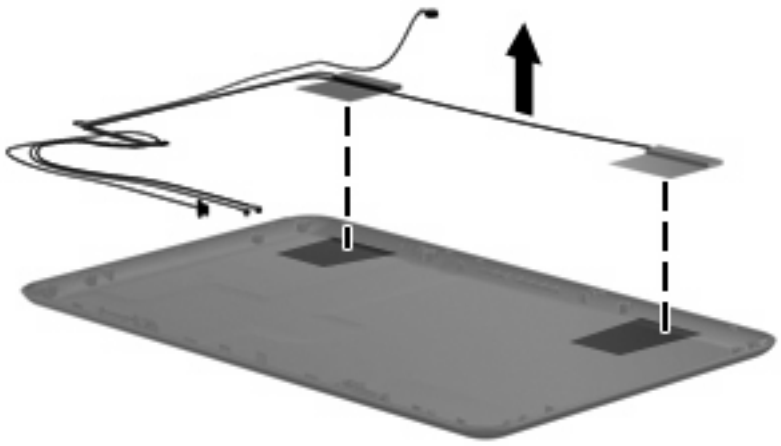


An 8.9-inch display panel (includes LCD cable and foil shield) is available as spare part number 508968-001.

8. If it is necessary to replace the display panel brackets, remove the two black Phillips PM2.0×4.0 screws **(1)** that secure each bracket to the display panel, and then remove the brackets **(2)**. The brackets (for 8.9-inch panels only) are available in the Display Hinge Kit, spare part number 504596-001.



9. If it is necessary to replace the wireless antenna transceivers and cables, detach the adhesive that secures the cables to the display enclosure, and then remove the cables. The wireless antenna transceivers and cables (for 8.9-inch panels only) are available in the Display Cable Kit, spare part number 504597-001.



Reverse this procedure to reassemble and install the display assembly.

5 Setup Utility

Starting the Setup Utility

The Setup Utility is a ROM-based information and customization utility that can be used even when your Windows operating system is not working.

The utility reports information about the device and provides settings for startup, security, and other preferences.

To start the Setup Utility, turn on or restart the device, and then press f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

Using the Setup Utility

Changing the language of the Setup Utility

The following procedure explains how to change the language of the Setup Utility. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is running, begin at step 2.

1. To open the Setup Utility, turn on or restart the device, and then press f10 while the "F10 = BIOS Setup Options" message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **System Configuration > Language,** and then press enter.
3. Use the arrow keys to select a language, and then press enter.
4. When a confirmation prompt with your language selected is displayed, press enter.
5. To save your change and exit the Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press enter.

Your change becomes effective immediately.

Navigating and selecting in the Setup Utility

Because the Setup Utility is not Windows based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or f5 or f6.
- To select an item, press enter.
- To close a text box or return to the menu display, press esc.
- To display additional navigation and selection information while the Setup Utility is open, pressf1 .

Displaying system information

The following procedure explains how to display system information in the Setup Utility. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is running, begin at step 2.

1. To open the Setup Utility, turn on or restart the device, and then press f10 while the "F10 = BIOS Setup Options" message is displayed in the lower left corner of the screen.
2. Select the **Main** menu. System information such as the system time and date and identification information about the device is displayed.
3. To exit the Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes,** and then press enter.

Restoring default settings in the Setup Utility

The following procedure explains how to restore the Setup Utility default settings. If the Setup Utility is not already running, begin at step 1. If the Setup Utility is running, begin at step 2.

1. To open the Setup Utility, turn on or restart the device, and then press f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. Use the arrow keys to select **Exit > Load Setup Defaults,** and then press enter.
3. When the Setup Confirmation is displayed, press enter.
4. To save your change and exit the Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press enter.

The Setup Utility default settings go into effect when the device restarts.

NOTE: Your password, security, and language settings are not changed when you restore the factory default settings.

Exiting the Setup Utility

You can exit the Setup Utility with or without saving changes.

- To exit the Setup Utility and save your changes from the current session:

  If the Setup Utility menus are not visible, press esc to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes,** and then press enter.

- To exit the Setup Utility without saving your changes from the current session:

  If the Setup Utility menus are not visible, press esc to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes,** and then press enter.

After either choice, the device restarts in Windows.

Setup Utility menus

The menu tables in this section provide an overview of Setup Utility options.

NOTE: Some of the Setup Utility menu items listed in this chapter may not be supported by your device.

Main menu

Select	To do this
System information	• View and change the system time and date. • View identification information about the device. • View specification information about the processor, memory size, and system BIOS.

Security menu

Select	To do this
Administrator password	Enter, change, or delete an administrator password.
Power-on password	Enter, change, or delete a power-on password.

System Configuration menu

Select	To do this
Language Support	Change the Setup Utility language.
Processor C4 State	Enable/disable the processor C4 sleep state.
Boot Options	Set the following boot options: • f10 and f12 Delay (sec.)—Set the delay for the f10 and f12 functions of the Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20). • Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter. • Boot Order—Set the boot order for: • Set the boot order. ◦ Internal hard drive (select models only) ◦ USB Floppy ◦ USB CD/DVD ROM Drive ◦ USB Diskette on Key ◦ USB Hard drive ◦ USB Card Reader ◦ Network adapter

Diagnostics menu

Select	To do this
Hard Disk Self Test (select models only)	Run a comprehensive self-test on the hard drive.
Memory Test	Run a diagnostic test on the system memory.

6 Specifications

Device specifications

	Metric	U.S.
Dimensions		
Depth	16.67 cm	6.56 in
Width	26.17 cm	10.30 in
Height	2.52 cm	0.99 in
Weight		
10.2-in. LCD, equipped with a 3-cell battery, 60-GB hard drive, 1-GB memory, WLAN module, and 2 wireless antennae	1.11 kg	2.45 lbs
10.2-in. LCD, equipped with a 3-cell battery, 8-GB solid-state drive, 1-GB memory, WLAN module, and 2 wireless antennae	1.09 kg	2.40 lbs
8.9-in. LCD, equipped with a 3-cell battery, 60-GB hard drive, 1-GB memory, WLAN module, and 2 wireless antennae	1.08 kg	2.38 lbs
8.9-in. LCD, equipped with a 3-cell battery, 8-GB solid-state drive, 1-GB memory, WLAN module, and 2 wireless antennae	1.02 kg	2.25 lbs
Input power		
Operating voltage	19 V dc @ 1.58 A – 30 W	
Operating current	1.58 A	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 65°C	-4°F to 149°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	0% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft

NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.

8.9-inch, WSVGA display specifications

	Metric	U.S.
Dimensions		
Height	11.34 cm	4.47 in
Width	19.51	7.68
Diagonal	22.61 cm	8.90 in
Number of colors	262,144	
Contrast ratio	300:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.1905 × 0.189 mm	
Format	1024 × 600	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	3.0 W	
Viewing angle	+/-45° horizontal, +15/-35° vertical (typical)	

10.2-inch, WSVGA display specifications

	Metric	U.S.
Dimensions		
Height	12.53 cm	4.93 in
Width	22.27 cm	8.77 in
Diagonal	25.55 cm	10.06 in
Number of colors	262,144	
Contrast ratio	400:1 (typical)	
Brightness	200 nits (typical)	
Pixel resolution		
Pitch	0.2175 × 0.2175 mm	
Format	1024 × 576	
Configuration	RGB vertical stripe	
Backlight	Edge lit	
Character display	80 × 25	
Total power consumption	3.0 W	
Viewing angle	+/-40° horizontal, +20/-40° vertical (typical)	

Hard drive specifications

	60-GB*
Dimensions	
Height	9.5 mm
Width	70 mm
Weight	101 g
Interface type	PATA
Transfer rate	100 MB/sec
Security	ATA security
Seek times (typical read, including setting)	
Single track	3 ms
Average	13 ms
Maximum	24 ms
Logical blocks	117,210,240
Disc rotational speed	4200 rpm
Operating temperature	
*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less. Actual drive specifications may differ slightly.	
NOTE: Certain restrictions and exclusions apply. Contact technical support for details.	

Solid-state drive specifications

Performance	
Transfer modes supported	UDMA 0-4, Multiword-DMA 0-2, PIO 0-4
Sustained read	39 MB/sec
Sustained write	17 MB/sec
Characteristics	
Interface	Parallel ATA (PATA)
MLC NAND flash capacity	8 GB, 16 GB
Electrical specifications	
DC supply voltage	3.3 V +/– 5%
Standby current	300 µA (typical)
Active current	Read = 130 mA (typical) Write = 120 mA (typical)
Environmental specifications	
Operating temperature	0°C to +70°C (32°F to 158°F)
Storage temperature	-25°C to +85°C (-13°F to 185°F)
Operating altitude	up to 24,384 m (80,000 feet)
Humidity	5% to 90% non-condensing
Shock	1,000 g
Acoustic noise	0 dB
Vibration	15 g (peak to peak)
Physical specifications	
Connector	40-pin ZIF connector
Weight (8-GB model)	5.5 g
Weight (16-GB model)	7.0 g
Dimensions (8-GB model)	54 x 32 x 2.6 mm
Dimensions (16-GB model)	54 x 32 x 3.75 mm
Regulations and compliance	RoHS, China RoHS, SGS ROHS, FCC, CE UL – PCB Only

System DMA specifications

Hardware DMA	System function
DMA0	Not applicable
DMA1*	Not applicable
DMA2*	Not applicable
DMA3	Not applicable
DMA4	Direct memory access controller

System interrupt specifications

Hardware IRQ	System function
IRQ0	System timer
IRQ1	Standard 101-/102-Key or Microsoft® Natural PS/2 Keyboard
IRQ8	System CMOS/real-time clock
IRQ9*	Microsoft ACPI-compliant system
IRQ12	Synaptics PS/2 TouchPad
IRQ13	Numeric data processor
IRQ14	Primary IDE channel
IRQ15	Intel® 82801G (ICH7 Family) SMBus Controller—27DA
IRQ16	Broadcom 802.11b/g WLAN no. 2
	Intel 82801G (ICH7 Family) PCI Express Root Port—27D0
	Intel 82801G (ICH7 Family) USB Universal Host Controller—27CB
	Microsoft UAA Bus Driver for High Definition Audio
	Mobile Intel 945 Express Chipset Family
IRQ17	Intel 82801G (ICH7 Family) PCI Express Root Port—27D2
IRQ18	Intel 82801G (ICH7 Family) USB Universal Host Controller—27CA
IRQ19	Intel 82801G (ICH7 Family) USB Universal Host Controller—27C9
IRQ23	Intel 82801G (ICH7 Family) USB Universal Host Controller—27C8
	Intel 82801G (ICH7 Family) USB2 Enhanced Host Controller—27CC
*Default configuration	

System I/O address specifications

I/O address (hex)	System function (shipping configuration)
000 - 00F	DMA controller
000 - CF7	PCI bus
010 - 01F	Motherboard resources
020 - 021	Programmable interrupt controller
022 - 03F	Motherboard resources
040 - 043	System timer
044 - 05F	Motherboard resources
060 - 060	Standard 101-/102-Key or Microsoft® Natural PS/2 Keyboard
061 - 061	System speaker
062 - 062	Microsoft ACPI-Compliant Embedded Controller
063- 063	Motherboard resources
064 - 064	Standard 101-/102-Key or Microsoft Natural PS/2 Keyboard
065 - 065	Motherboard resources
066 - 066	Microsoft ACPI-Compliant Embedded Controller
067 - 06F	Motherboard resources
070 - 071	System CMOS/real-time clock
072 - 07F	Motherboard resources
080 - 080	Motherboard resources
081 - 083	DMA controller
084 - 086	Motherboard resources
087 - 087	DMA controller
088 - 088	Motherboard resources
089 - 08B	DMA controller
08C - 08E	Motherboard resources
08F - 08F	DMA controller
090 - 09F	Motherboard resources
0A0 - 0A1	Programmable interrupt controller
0A2 - 0BF	Motherboard resources
0C0 - 0DF	DMA controller
0E0 - 0EF	Motherboard resources
0F0 - 0FF	Numeric data processor
1F0 - 1F7	Primary IDE channel
274 - 277	ISAPNP Read Data Port

I/O address (hex)	System function (shipping configuration)
279 - 279	ISAPNP Read Data Port
3B0 - 3BB	Mobile Intel® 945 Express Chipset Family
3C0 - 3DF	Mobile Intel 945 Express Chipset Family
3F6 - 3F6	Primary IDE channel
400 - 41F	Intel 82801G (ICH7 Family) SMBus Controller—27DA
480 - 4BF	Motherboard resources
4D0 - 4D1	Motherboard resources
500 - 501	Motherboard resources
800 - 87F	Motherboard resources
A79 - A79	ISAPNP Read Data Port
0D00 - FFFF	PCI bus
D480 - D49F	Intel 82801G (ICH7 Family) USB Universal Host Controller—27C8
D800 - D81F	Intel 82801G (ICH7 Family) USB Universal Host Controller—27CA
D880 - D89F	Intel 82801G (ICH7 Family) USB Universal Host Controller—27C9
DC00 - DC1F	Intel 82801G (ICH7 Family) USB Universal Host Controller—27C8
DC80 - DC87	Mobile Intel 945 Express Chipset Family
E000 - EFFF	Intel 82801G (ICH7 Family) PCI Express Root Port—27D2
FFA0 - FFAF	Intel 82801G (ICH7 Family) Ultra ATA Storage Controllers—27DF

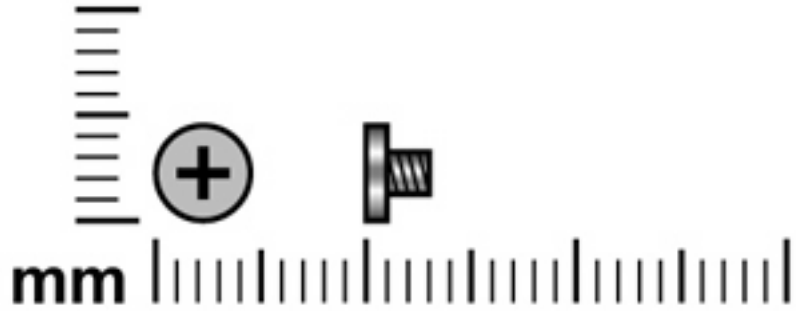
System memory map specifications

Memory address	System function
00000000 - 0009FFFF	System board
000A0000 - 000BFFFF	Mobile Intel® 945 Express Chipset Family
000A0000 - 000BFFFF	PCI bus
000C0000 - 000CFFFF	System board
000D0000 - 000DFFFF	PCI bus
000E0000 - 000FFFFF	System board
00100000 - 3F7FFFFF	System board
3F800000 - DFFFFFFF	PCI bus
D0000000 - DFFFFFFF	Mobile Intel 945 Express Chipset Family
E0000000 - E3FFFFFF	Motherboard resources
E4000000 - FED8FFFF	PCI bus
FE880000 - FE8FFFFF	Mobile Intel 945 Express Chipset Family
FE937C00 - FE937FFF	Intel 82801G (ICH7 Family) USB2 Enhanced Host Controller—27CC
FE938000 - FE93BFFF	Microsoft® UAA Bus Driver for High Definition Audio
FE940000 - FE97FFFF	Mobile Intel 945 Express Chipset Family
FE980000 - FE9FFFFF	Mobile Intel 945 Express Chipset Family
FEA00000 - FEAFFFFF	Intel 82801G (ICH7 Family) PCI Express Root Port—27D0
FEAFC000 - FEAFFFFF	Broadcom 802.11b/g WLAN
FEB00000 - FEBFFFFF	Intel 82801G (ICH7 Family) PCI Express Root Port—27D2
FEC00000 - FEC00FFF	Motherboard resources
FED13000 - FED19FFF	System board
FED1C000 - FED1FFFF	Motherboard resources
FED20000 - FED3FFFF	Motherboard resources
FED40000 - FED8FFFF	Motherboard resources
FED90000 - FFFFFFFF	System board
FEE00000 - FEE00FFF	Motherboard resources

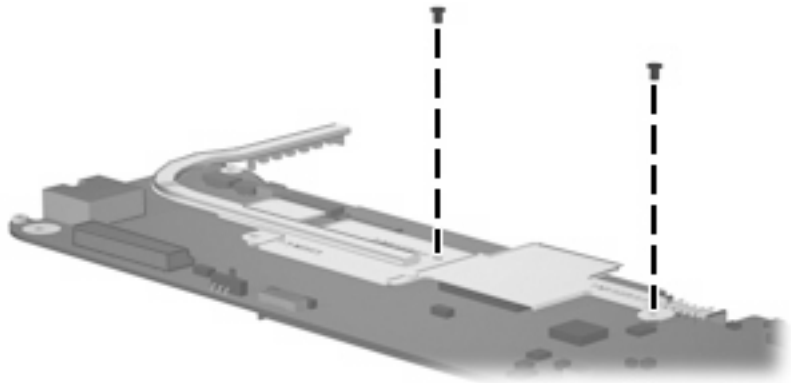
7 Screw listing

This section provides specification and reference information for the screws and screw locks used in the device. All screws listed in this section are available in the Screw Kit, spare part number 504614-001, or in the Display Screw Kit, part number 509700-001.

Phillips PM1.6×2.5 screw



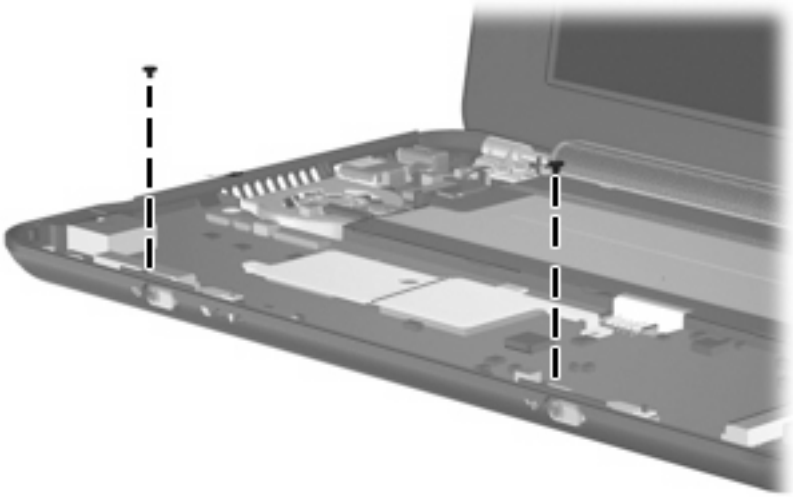
Color	Quantity	Length	Thread	Head diameter
Silver	2	2.5 mm	1.6 mm	4.0 mm



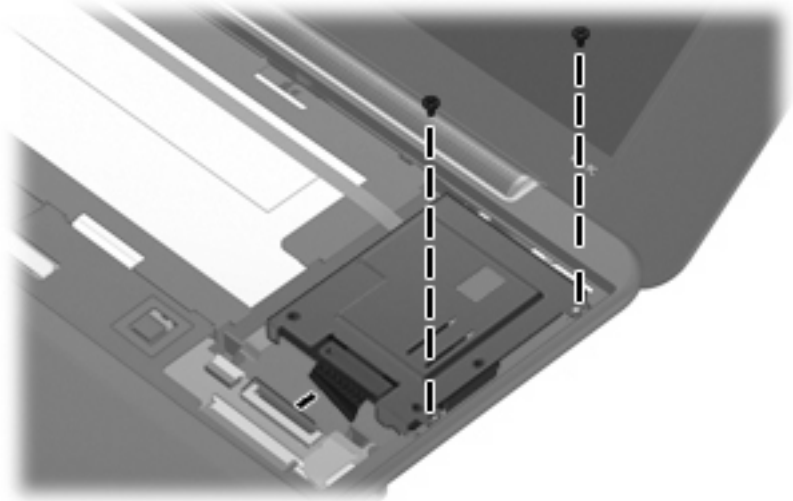
Where used: Two screws that secure the heat sink to the system board

Phillips PM2.0×3.0 screw

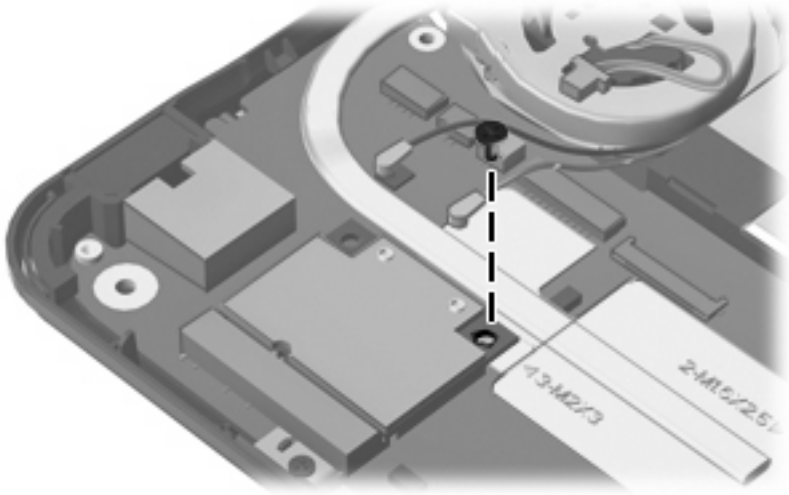
Color	Quantity	Length	Thread	Head diameter
Silver	3 (hard-drive option) 5 (SSD option)	3.0 mm	2.0 mm	4.5 mm



Where used: Two screws that secure the power and wireless switch actuators to the system board

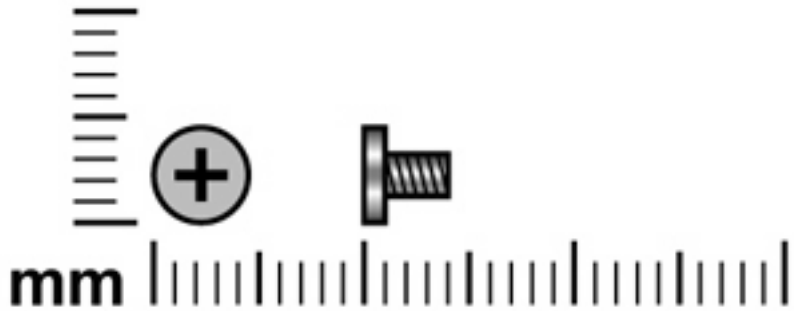


Where used: Two screws that secure the solid-state drive bracket to the device



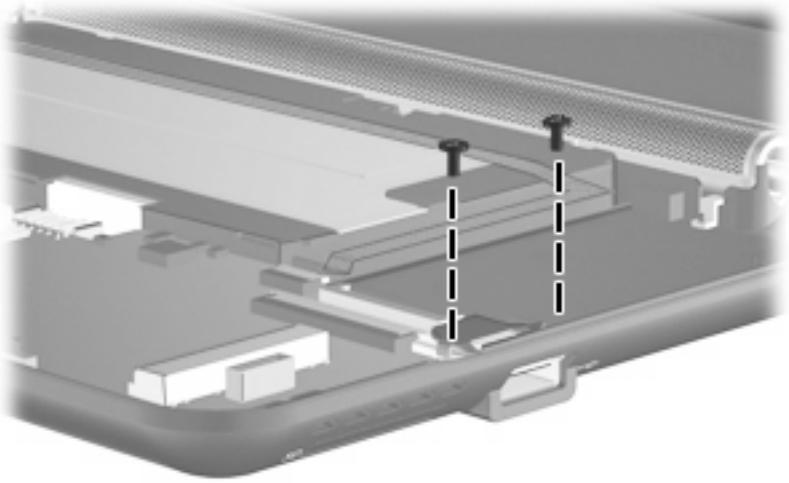
Where used: One screw that secures the WLAN module to the system board

Phillips PM2.0×4.0 screw

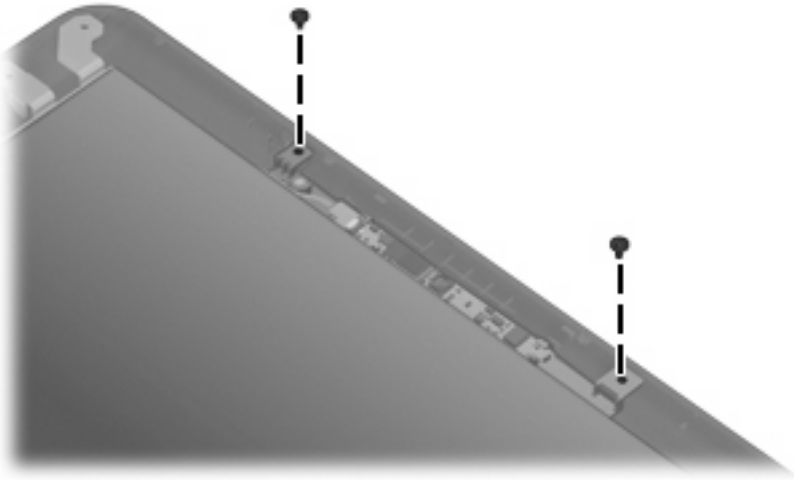


Color	Quantity	Length	Thread	Head diameter
Silver	19	4.0 mm	2.0 mm	4.5 mm

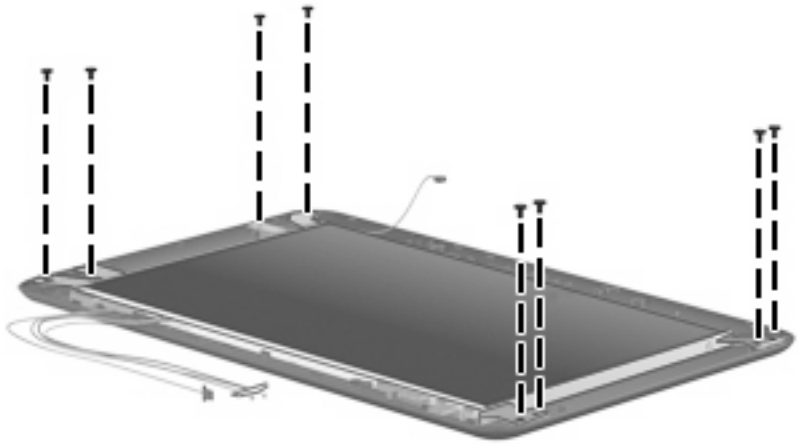
Where used: One screw that secures the keyboard to the device



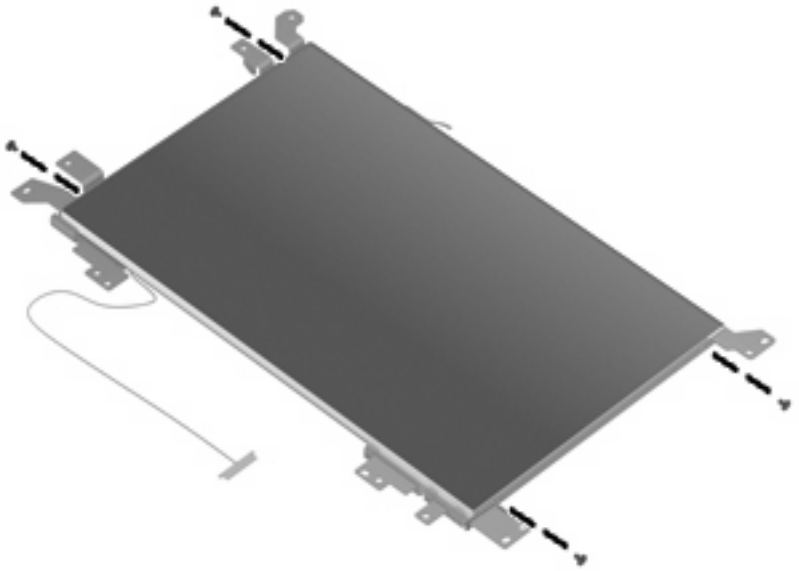
Where used: Two screws that secure the USB connector bracket to the system board



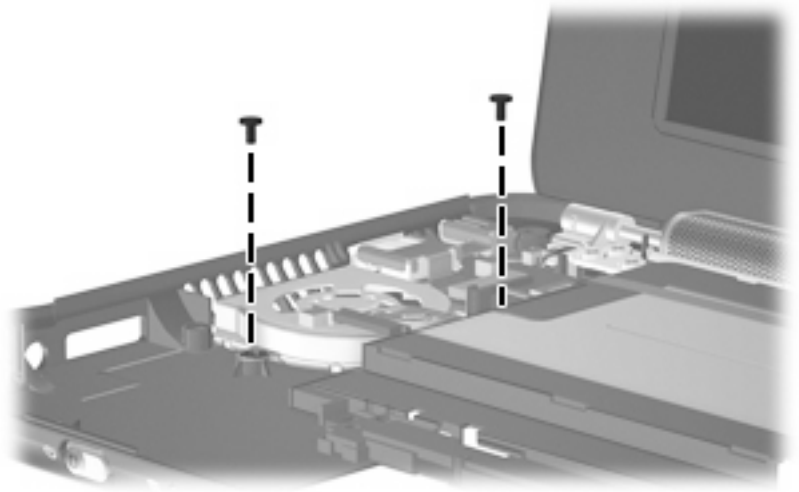
Where used: Two screws that secure the webcam module to the display enclosure



Where used: Eight screws that secure the display panel to the display enclosure

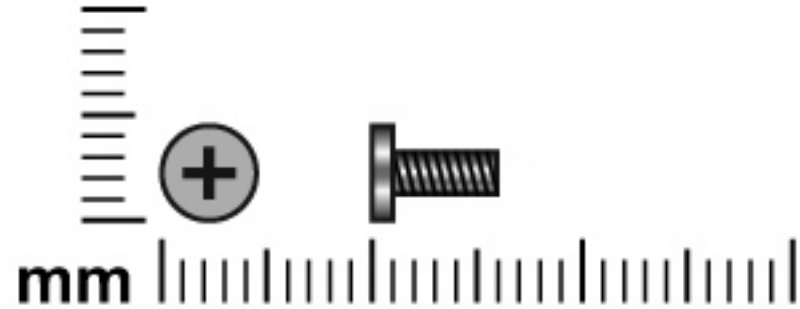


Where used: Four screws that secure the left and right display panel brackets to the display panel

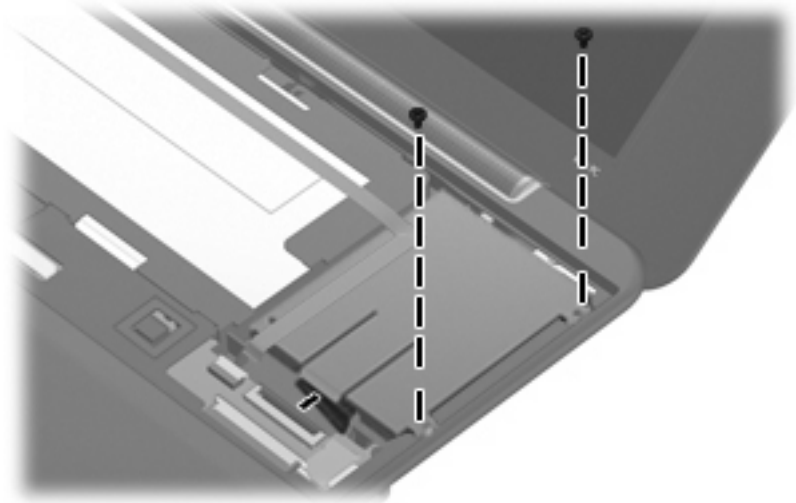


Where used: Two screws that secure the fan to the base enclosure

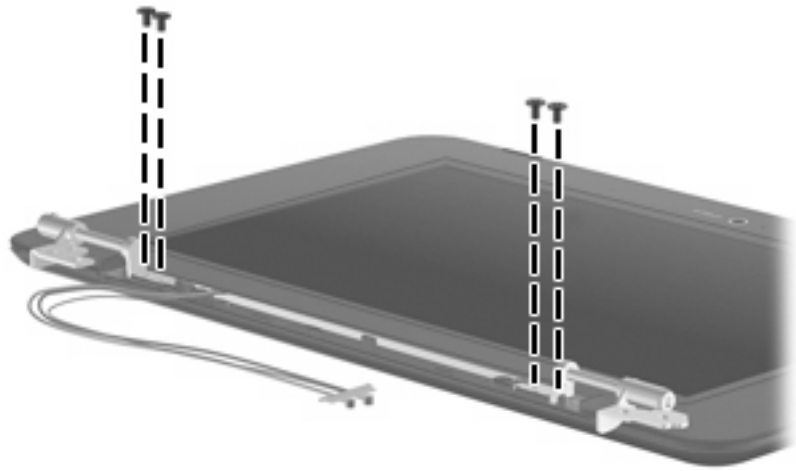
Phillips PM2.0×6.0 screw



Color	Quantity	Length	Thread	Head diameter
Black	6 (hard-drive option) 4 (SSD option)	6.0 mm	2.0 mm	4.5 mm

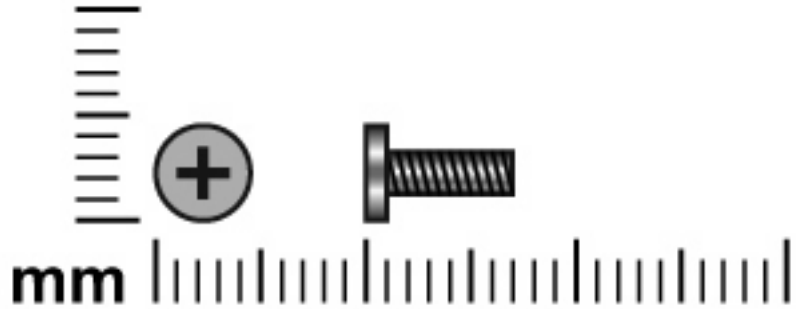


Where used: Two screws that secure the hard drive to the system board

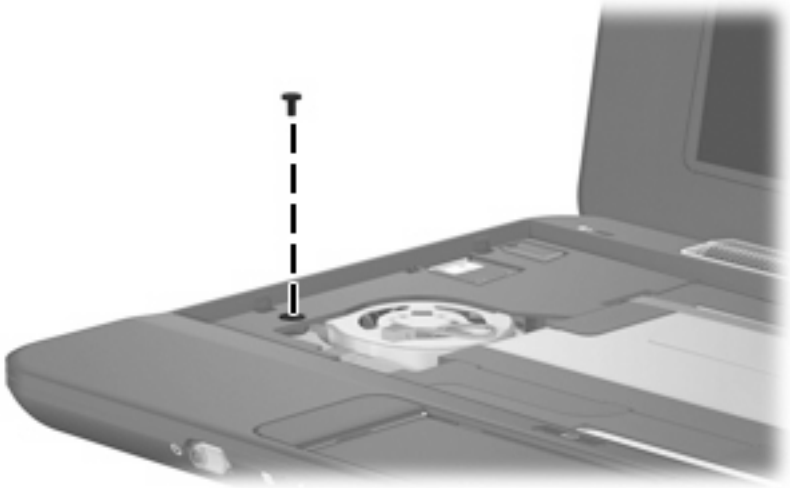


Where used: Four screws that secure the display hinges to the display assembly

Phillips PM2.0×7.0 screw

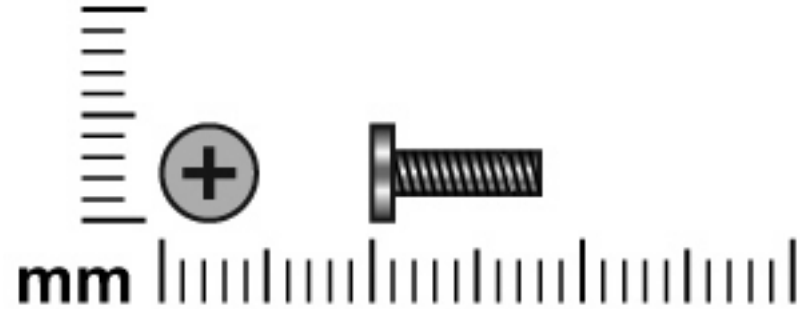


Color	Quantity	Length	Thread	Head diameter
Silver	1	7.0 mm	2.0 mm	4.5 mm

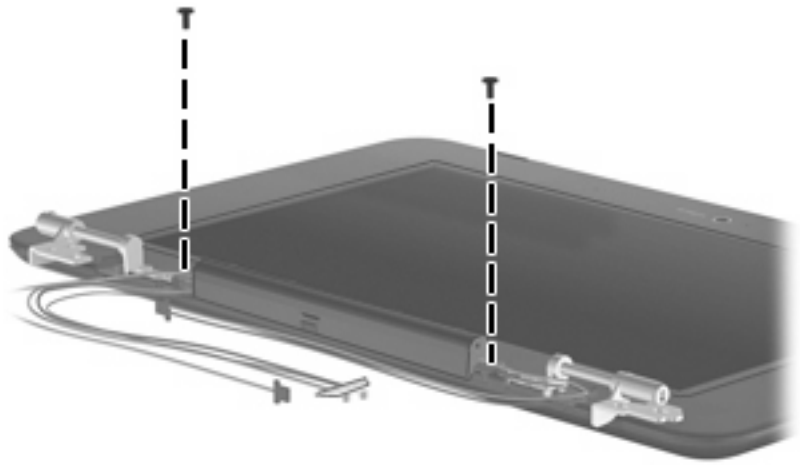


Where used: One screw that secures the top cover to the device (top console)

Phillips PM2.0×8.0 screw

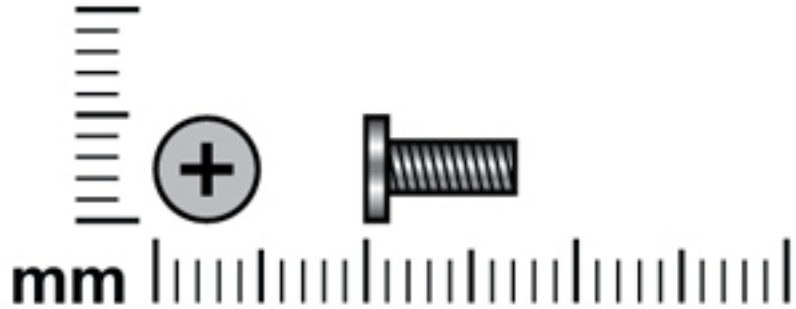


Color	Quantity	Length	Thread	Head diameter
Silver	2	8.0 mm	2.0 mm	4.5 mm

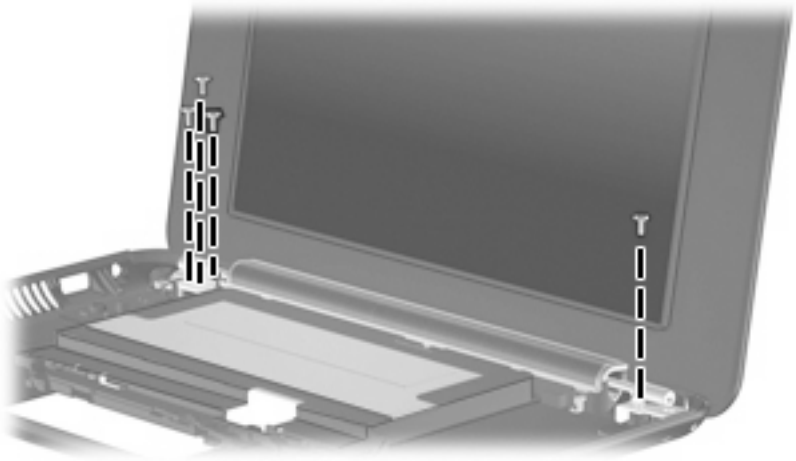


Where used: Two screws that secure the speaker assembly to the display enclosure

Phillips PM2.5×7.0 screw

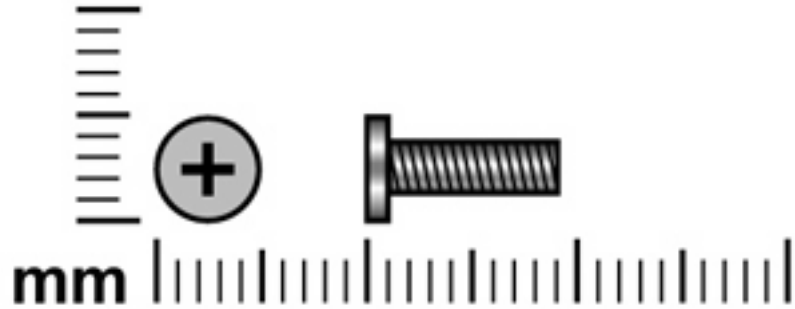


Color	Quantity	Length	Thread	Head diameter
Silver	4	7.0 mm	2.5 mm	5.0 mm

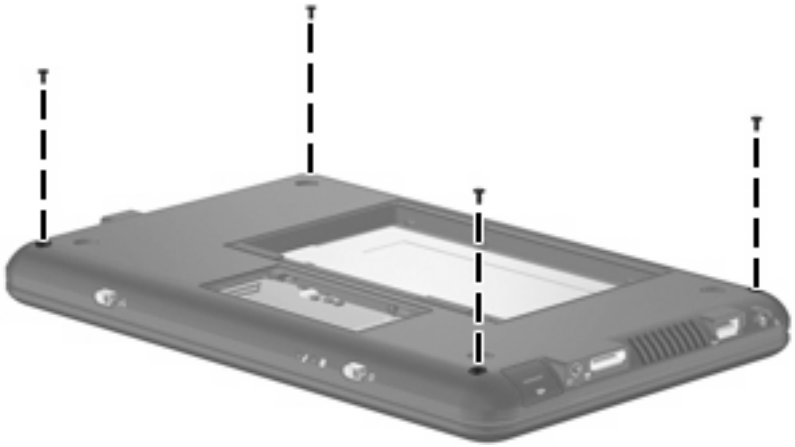


Where used: Four screws that secure the display assembly to the device

Phillips PM2.5×9.0 screw



Color	Quantity	Length	Thread	Head diameter
Silver	4	9.0 mm	2.5 mm	5.0 mm



Where used: Four screws that secure the base enclosure to the device

8 Backup and recovery

Backing up your information

NOTE: You can recover only the files that you have previously backed up. HP recommends that you use the Windows backup utility to create a hard drive backup as soon as you set up your device.

With the Windows backup utility, you can perform the following tasks:

- Backing up your information regularly to protect your important system files
- Creating system recovery points that allow you to reverse undesirable changes to your device by restoring the device to an earlier state
- Scheduling backups at specific intervals or events

NOTE: The Windows backup utility backs up only data files. The operating system, drivers, and programs are located on the operating system disc and the System Recovery disc that are included with the device.

When to back up

- On a regularly scheduled basis

  NOTE: Set reminders to back up your information periodically.

- Before the device is repaired or restored
- Before you add or modify hardware or software

Backup suggestions

- Connect the device to external power before performing backup and recovery procedures.
- Create system recovery points.
- Store personal files in the My Documents folder and back up these folders periodically.
- Back up templates stored in their associated programs.
- Save customized settings that appear in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time saver if you have to reset your preferences.

To copy the screen and paste it into a word-processing document:

1. Display the screen you want to save.
2. Copy the screen image:

   To copy only the active window, press **alt+fn+prt sc**.

   To copy the entire screen, press **fn+prt sc**.
3. Open a word-processing document and click **Edit > Paste**.

   The screen image is added to the document.
4. Save the document.

Backing up individual files or folders

You can back up individual files or folders to an optional external hard drive or to a network drive.

NOTE: This process will take several minutes, depending on the file size and the speed of the device.

To back up individual files or folders:

1. Select **Start > All Programs > Accessories > System Tools > Backup**.

   The Backup or Restore Wizard page opens.
2. Click **Next**.
3. Click **Backup files and settings**, and then click **Next**.
4. Follow the on-screen instructions.

Backing up all files and folders

When you back up all files and folders, you are saving all personal files and folders, all system files, and configuration settings at one time.

NOTE: When you back up all files and folders, this does not include the operating system or programs.

NOTE: This process may take over an hour, depending on your device speed and the amount of data being stored.

NOTE: A copy of the backup files can be stored on an optional external hard drive or on a network drive.

To back up all files and folders:

1. Select **Start > All Programs > Accessories > System Tools > Backup**.

   The Backup or Restore Wizard page opens.

2. Click **Next**.
3. Click **Backup files and settings**, and then click **Next**.
4. Click **All information on this computer**, and then click **Next**.
5. Follow the on-screen instructions.

Creating recovery points

When you back up system modifications since your last backup, you are creating system recovery points. This allows you to save a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes made to your system.

NOTE: The first system recovery point, a snapshot of the entire image, is automatically created the first time you perform a backup. Subsequent recovery points make copies of changes made after that time.

HP recommends that you create recovery points at the following times:

- Before you add or extensively modify software or hardware
- Periodically, whenever the system is performing optimally

NOTE: Recovering to an earlier recovery point does not affect data files or e-mails created since that recovery point.

To create a system recovery point:

1. Select **Start > All Programs > Accessories > System Tools > System Restore**.

   The System Restore window opens.

2. Click **Create a new restore point**, and then click **Next**.
3. Type a short description of the restore point. This will be used as the name of the restore point.
4. Click **Create**.
5. Follow the on-screen instructions.

Scheduling backups

You can schedule backups for the entire system, for recovery points, or for specific files and folders. Backups can be scheduled at specific intervals (daily, weekly, or monthly) or at specific events, such as at system restart or when you log on.

To schedule backups:

1. Select **Start > All Programs > Accessories > System Tools > Schedule Tasks**.

   The Schedule Tasks window opens.

2. Double-click **Add Scheduled Task**, and then click **Next**.

3. Select **Backup in the Application list**, and then click **Next**.

4. Type a name for the backup, select when you want the backup to be performed, and then click **Next**.

5. Enter your user name, password, and password again to confirm. Click **Next**, and then click **Finish**.

Performing a recovery

The Windows backup utility helps you recover important files that you have previously backed up in case of system failure.

NOTE: To recover the operating system and programs, use the operating system disc and the System Restore disc that are included with the device.

Initiating a recovery in Windows

To initiate a recovery in Windows, follow these steps:

1. If possible, back up all personal files.

2. Select **Start > All Programs > Accessories > System Tools > Backup**.

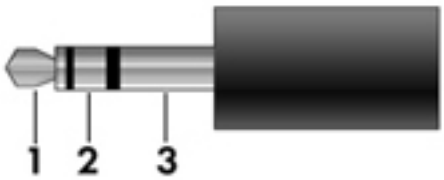
   The Backup or Restore Wizard page opens.

3. Click **Restore files and settings**, and then click **Next**.

4. Follow the on-screen instructions.

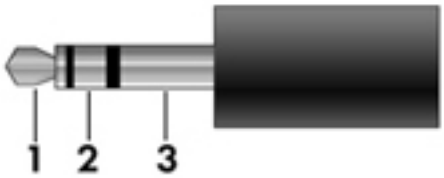
9 Connector pin assignments

Audio-in (microphone)



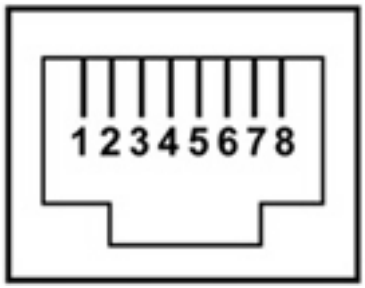
Pin	Signal
1	Audio signal in
2	Audio signal in
3	Ground

Audio-out (headphone)



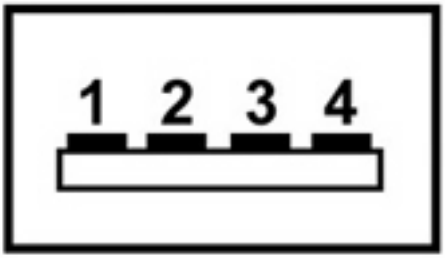
Pin	Signal
1	Audio out, left channel
2	Audio out, right channel
3	Ground

RJ-45 (network)



Pin	Signal
1	Transmit +
2	Transmit -
3	Receive +
4	Unused
5	Unused
6	Receive -
7	Unused
8	Unused

Universal Serial Bus



Pin	Signal
1	+5 VDC
2	Data -
3	Data +
4	Ground

10 Power cord set requirements

The wide range input feature of the device permits it to operate from any line voltage from 100 to 120 volts AC or from 220 to 240 volts AC.

The 3-conductor power cord set included with the device meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the device is used.

Requirements for all countries and regions

The requirements listed below are applicable to all countries and regions:

- The length of the power cord set must be at least 1.5 m (5.0 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the device.

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	CCC	5
South Korea	EK	4
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type HO5VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.

4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

11 Recycling

Battery

When a battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for computer battery disposal.

Display

⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

⚠ **CAUTION:** The procedures in this chapter can result in damage to display components. The only components intended for recycling purposes are the liquid crystal display (LCD) panel and the backlight. When you remove these components, handle them carefully.

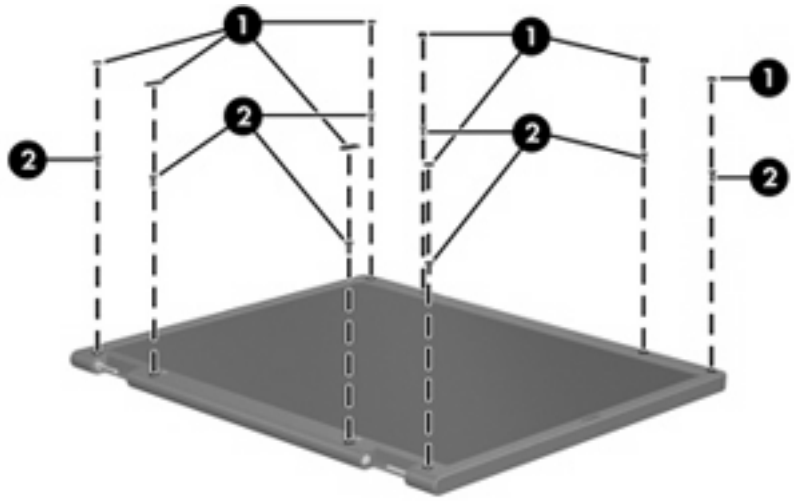
NOTE: **Materials Disposal**. This HP product contains mercury in the backlight in the display assembly that might require special handling at end-of-life. Disposal of mercury may be regulated because of environmental considerations. For disposal or recycling information, contact your local authorities, or see the Electronic Industries Alliance (EIA) Web site at http://www.eiae.org.

This section provides disassembly instructions for the display assembly. The display assembly must be disassembled to gain access to the backlight **(1)** and the liquid crystal display (LCD) panel **(2)**.

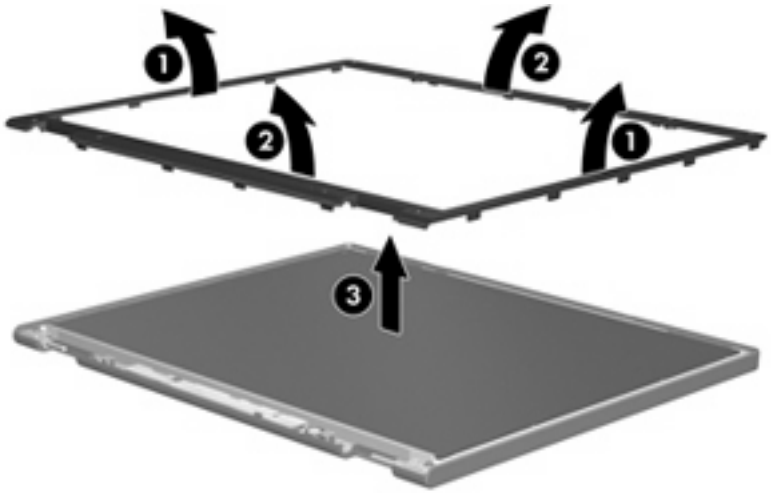
NOTE: The procedures provided in this appendix are general disassembly instructions. Specific details, such as screw sizes, quantities, and locations, and component shapes and sizes, can vary from one computer model to another.

Perform the following steps to disassemble the display assembly:

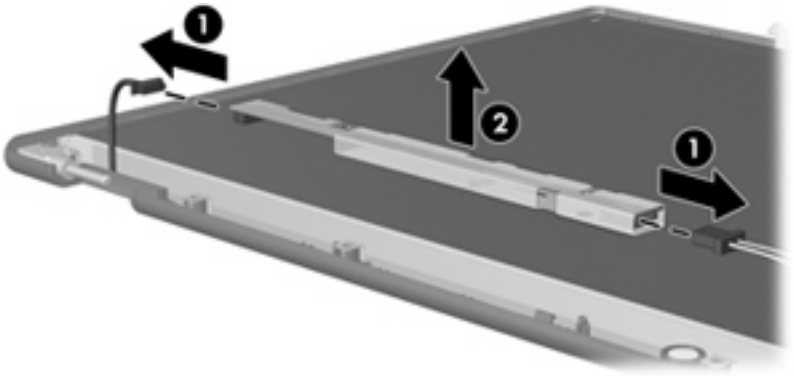
1. Remove all screw covers **(1)** and screws **(2)** that secure the display bezel to the display assembly.



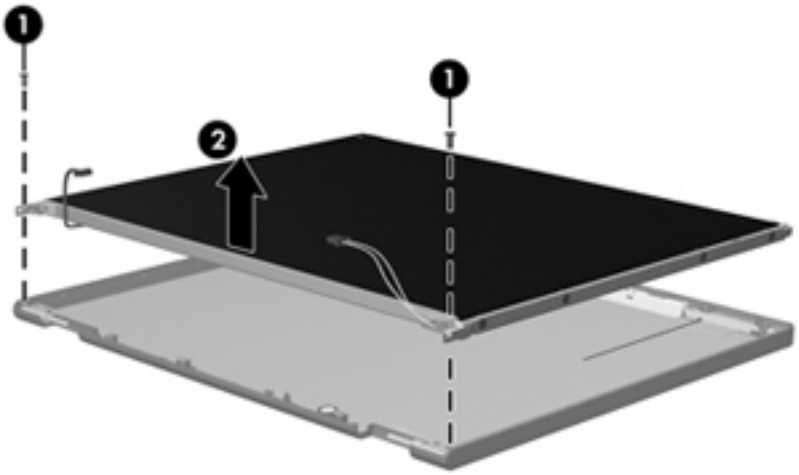
2. Lift up and out on the left and right inside edges **(1)** and the top and bottom inside edges **(2)** of the display bezel until the bezel disengages from the display assembly.
3. Remove the display bezel **(3)**.



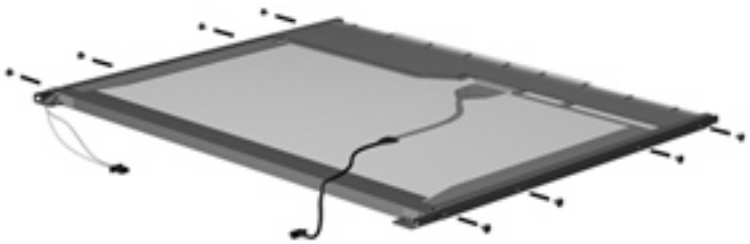
4. Disconnect all display panel cables **(1)** from the display inverter and remove the inverter **(2)**.



5. Remove all screws **(1)** that secure the display panel assembly to the display enclosure.
6. Remove the display panel assembly **(2)** from the display enclosure.

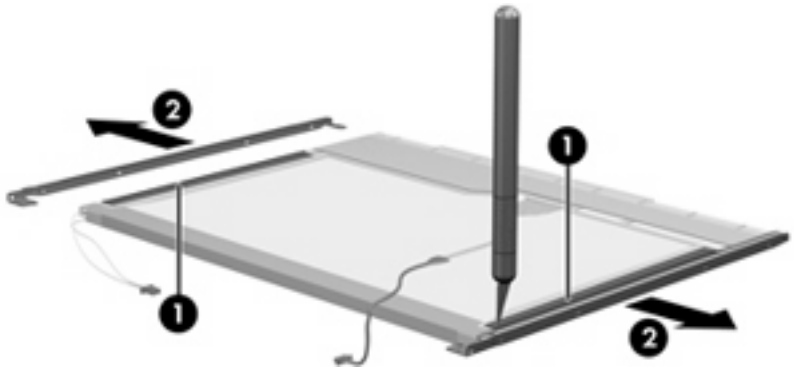


7. Turn the display panel assembly upside down.
8. Remove all screws that secure the display panel frame to the display panel.

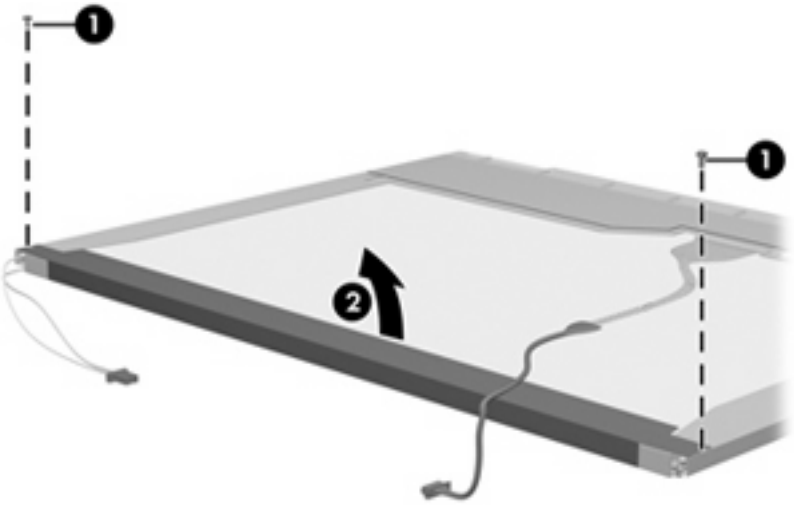


9. Use a sharp-edged tool to cut the tape **(1)** that secures the sides of the display panel to the display panel frame.

10. Remove the display panel frame **(2)** from the display panel.

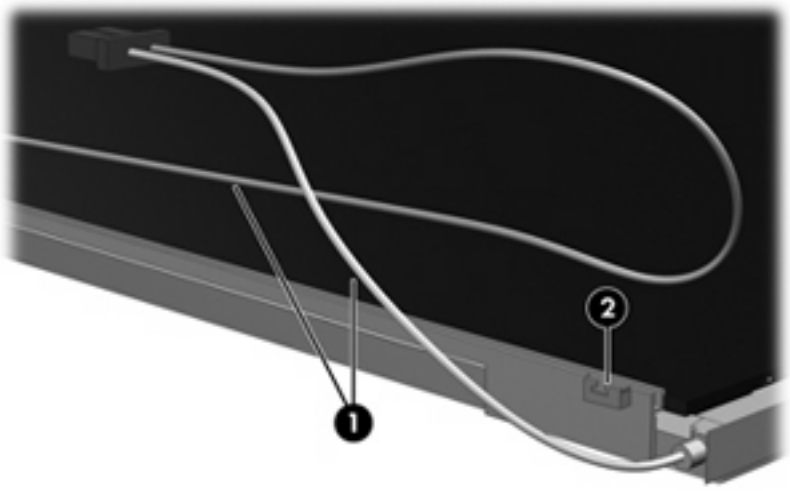


11. Remove the screws **(1)** that secure the backlight cover to the display panel.
12. Lift the top edge of the backlight cover **(2)** and swing it outward.



13. Remove the backlight cover.
14. Turn the display panel right-side up.

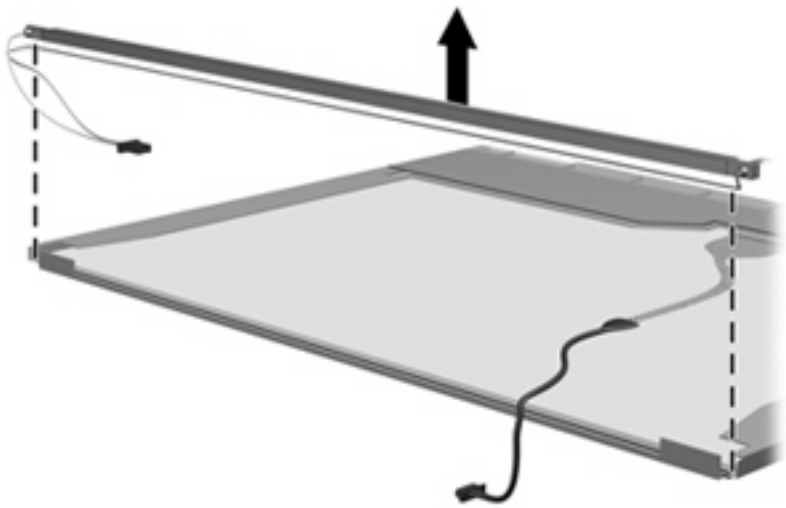
15. Remove the backlight cables **(1)** from the clip **(2)** in the display panel.



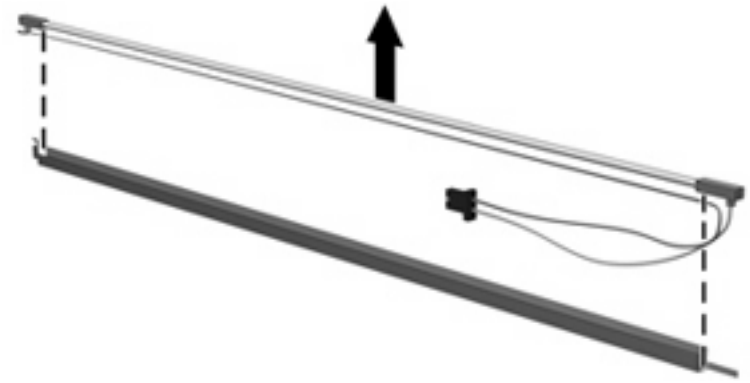
16. Turn the display panel upside down.

⚠ **WARNING!** The backlight contains mercury. Exercise caution when removing and handling the backlight to avoid damaging this component and causing exposure to the mercury.

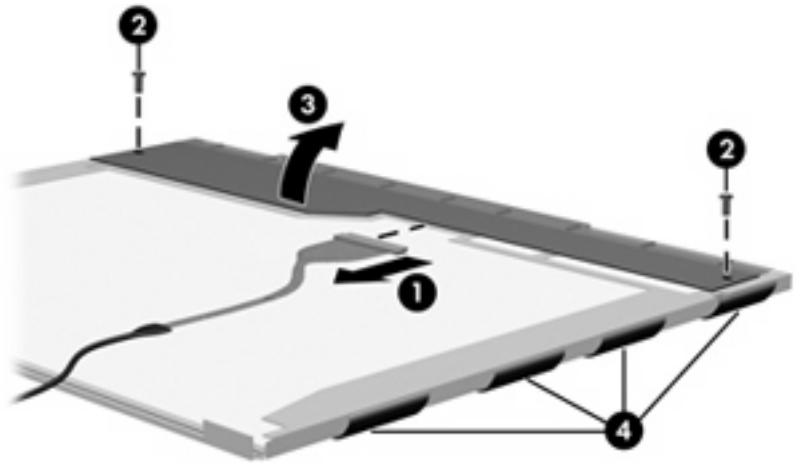
17. Remove the backlight frame from the display panel.



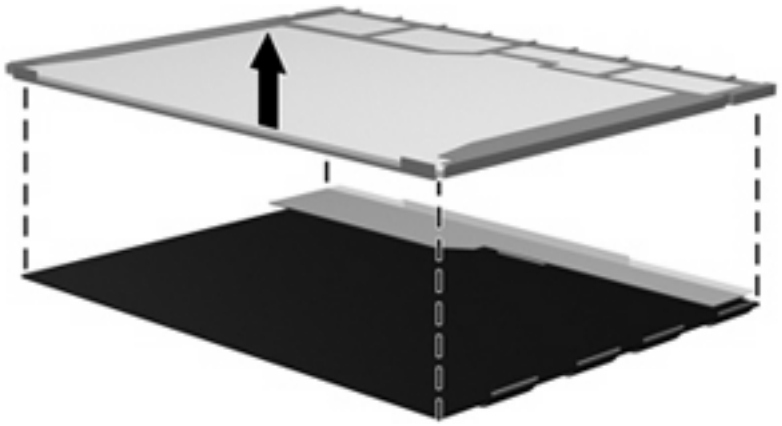
18. Remove the backlight from the backlight frame.



19. Disconnect the display panel cable **(1)** from the LCD panel.
20. Remove the screws **(2)** that secure the LCD panel to the display rear panel.
21. Release the LCD panel **(3)** from the display rear panel.
22. Release the tape **(4)** that secures the LCD panel to the display rear panel.



23. Remove the LCD panel.



24. Recycle the LCD panel and backlight.

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